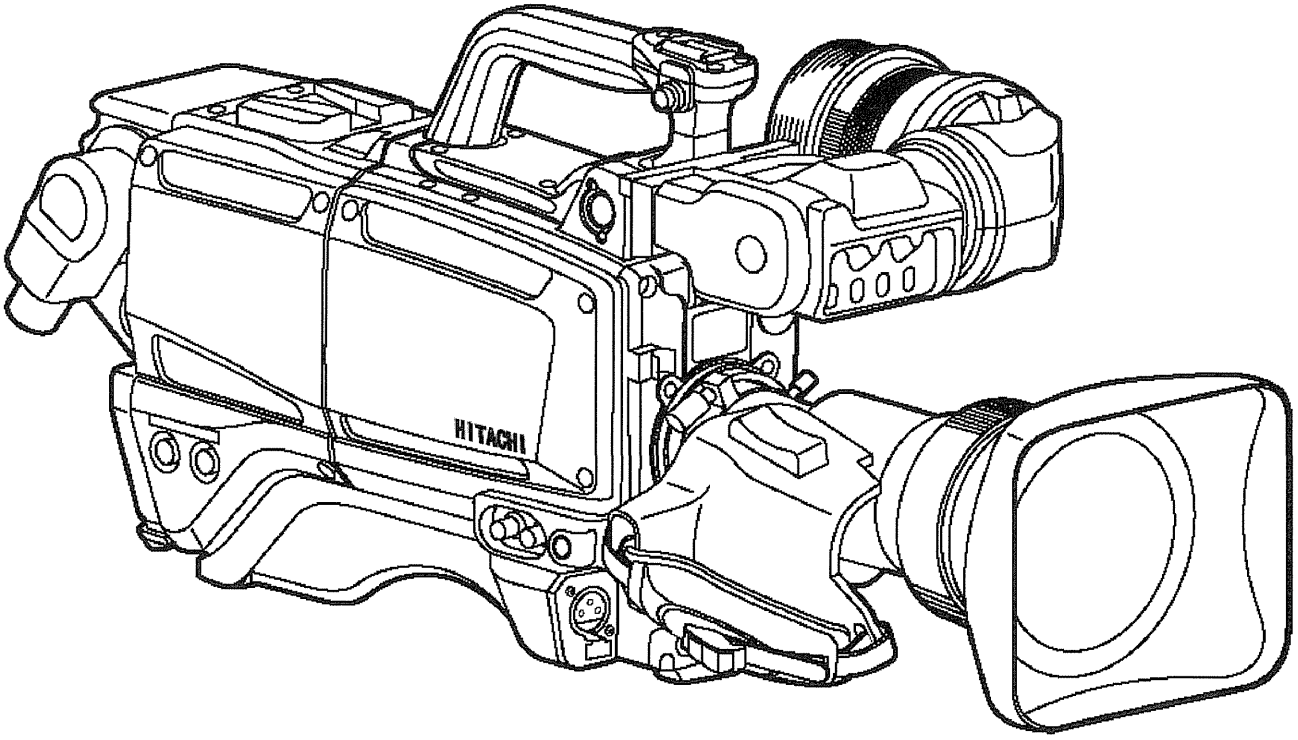
HITACHI

HD COLOR CAMERA

SK-HD1000

OPERATING INSTRUCTIONS



Please read these operating instructions carefully for proper operation, and keep them for future reference.

Hitachi Kokusai Electric

Note: The model and serial numbers of your product are important for you to keep for your convenience and protection. These numbers appear on the nameplate located on bottom of the product. Please record these numbers in the spaces provided below, and retain this manual for future reference.

Model No. _____ **Serial No.** _____

SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual and safety Instructions on your equipment.
Follow recommended precautions and safe operating practices.

SAFETY ALERT SYMBOL

This is the "Safety Alert Symbol." This symbol is used to call your attention to items or operations that could be dangerous to you or other persons using this equipment. Read these messages and follow these instructions carefully.

It is essential that you read the instructions and safety regulations before you attempt to assemble or use this equipment.

The definitions of signal words are as follows:

⚠ WARNING — **WARNING:** Personal danger
Warning notes indicate any condition or practice, which if not strictly observed, could result in personal injury or possible death.

⚠ CAUTION — **CAUTION:** Possible damage to equipment
Caution notes indicate any condition or practice, which if not strictly observed or remedied, could result in damage or destruction of the equipment.

NOTE — **NOTE:** Notes indicate an area or subject of special merit, emphasizing either the product's capabilities or common errors in operation or maintenance.

⚠ **WARNING:** TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS COLOR CAMERA TO RAIN OR MOISTURE.

AVERTISSEMENT

Afin d'éviter tout risque d'incendie ou d'électrocution, ne pas exposer l'appareil á la pluie ou á l'humidité.
Afin d'écarter tout risque d'électrocution, garder le coffret fermé.
Ne confier l'entretien de l'appareil qu á un personnel qualifié.

VORSICHT

Um Feuergefahr und die Gefahr eines eiektrischen Schiages zu vermeiden, darf das Gerät weder Regen noch Feuchtigkeit ausgesetzt werden.
Um einen elektrischen Schiag zu vermeiden, darf das Gehäuse richt geöffnet werden.
Überiassen Sie Wartungsarbeiten stets nur einem Fachmann.

IMPORTANT SAFETY INSTRUCTIONS

1. Read Instructions
All the safety and operating instructions should be read before the product is operated.

2. Retain Instructions
The safety and operating instructions should be retained for future reference.

3. Heed Warnings
All warnings on the product and the operating instructions should be adhered to.

4. Follow Instructions
All operating and use instructions should be followed.

5. Cleaning
Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

6. Attachments
Do not use attachments not recommended by the product manufacturer as they may cause hazards.

7. Water and Moisture
Do not use this product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.

8. Accessories
Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

9. Moving
A product and cart combination should be moved with care.
Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

10. Ventilation
Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered.
The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

11. Power Sources
This product should be operated only from the type of power source indicated on the marking label. If company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

12. Grounding or Polarization
This product is equipped with a three-wire grounding-type plug a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

13. Power-Cord Protection
Power-supply cords should be routed to that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plug, convenience receptacles, and the point where they exit from the product.

14. Lightning

For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the product due to lightning and power-line surges.

15. Overloading

Do not overload wall outlets, extension cords or integral convenience receptacles as this can result in a risk of fire or electric shock.

16. Object and Liquid Entry

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

17. Inflammable and Explosive Substance

Avoid using this product where there are gases, and also where there are inflammable and explosive substances in the immediate vicinity.

18. Heavy Shock or Vibration

When carrying this product around, do not subject the product to heavy shock or vibration.

19. Servicing

Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

20. Damage Requiring Service

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a. When the power-supply cord or plug is damaged.
b. if liquid has been spilled, or objects have fallen into the product.
c. If the product has been exposed to rain or water.
d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
e. If the product has been dropped or damaged in any way.
f. When the product exhibits a distinct change in performance-this indicates a need for service.

21. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

22. Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

23. Wall or Ceiling Mounting

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

24. Heat

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

WICHTIGE SICHERHEITSANWEISUNGEN

1. Alle Anweisungen lesen.
Vor Betrieb des Erzeugnisses sollten alle Sicherheits-und Bedienungsanleitungen gelesen werden.

2. Die Anweisungen aufbewahren.
Die Sicherheits-und Bedienungsanleitungen sollten fünftigen Bezug aufbewahrt werden.

3. Warnungen beachten.
Die Warnungen auf dem Erzeugnis und in den Bedienungsanleitungen solten beachtet werden.

4. Anweisungen befolgen.
Alle Bedienungsanleitung-und
Verwendungsanweisungen sollten befolgt werden.

5. Reinigung
Den Stecker des Geräts vor Reinigung aus der Steckdose ziehen. Keine flüssigen Reinigungsmittel oder Aerosolreiniger verwenden. Zum Reinigen einen feuchten Lappen verwenden.

6. Zubehör
Nur vom-Hersteller des Erzeugnisses empfohlenes Zubehör verwenden, da es sonst zu Störungen kommen kann.

7. Wasser und Feuchtigkeit
Dieses Erzeugnis nicht in der Nähe von Wasser verwenden - z.B, in der Nähe einer Badewanne, eines Waschbeckens, einer Küchenspüle, eines Waschzubers, in einem nassen Keller, in der Nähe eines Schwimmbeckens usw.

8. Aufstellung
Das Erzeugnis nicht auf einen unstabilen Wagen, Stand, Dreifuß, Träger oder Tisch stellen.
Das Erzeugnis kann sonst herunterfallen und ein kind oder einen Erwachsenen schwer verietzen.
Außerdem kann das Gerät schwer beschädigt werden. Nur mit einem Wagen, Stand, Dreifuß, Träger oder Tisch verwenden, der vom Hersteller empfohlen oder mit dem Erzeugnis verkauft worden ist.
Für jegliche Anbringung sollten die Anweisungen des Herstellers befolgt werden, und das vom Hersteller empfohlene Anbringungszubehör sollte verwendet werden.

9. Eine Kombination von Erzeugnis und Wagen sollte vorsichtig bewegt werden.
Schneller Halt, übermäßige Krafteinwirkung und unebene Oberflächen können Umkippen der kombination von Erzeugnis und Wagen verursachen.

10. Ventilation
Schlitze und Öffnungen im Gehäuse dienen der Ventilation. Sie sind für zuverlässigen Betrieb des Gerätes und Schutz vor Überhitzung erforderlich und dürfen nicht blockiert oder abgedeckt werden.
Die Öffnungen sollten niemals dadurch blockiert werden, daß, das Gerät auf ein Bett, ein Sofa, einen Teppich oder eine ähnliche Oberfläche gestellt wird.
Das Gerät sollte nur dann in Einbauinstallierung wie in einem Bücherschrank oder einem Gestell verwendet werden, wenn angemessene Ventilation vorgesehen ist bzw. Die Anweisungen des Herstellers befolgt worden sind.

11. Stromversorgung
Dieses Erzeugnis sollte nur an der auf dem Typenschild angegebenen Stromversorgungsart betrieben werden. Wenn Sie nicht sicher sind, was für eine Stromversorgung Sie haben, so wenden Sie sich bitte an Ihren Erzeugnishändler oder an das lokale Elektrizitätswerk. Beziehen Sie sich für Batteriebetrieb oder andere Stromquellen vorgesehene Erzeugnisse bitte auf die Bedienungsanleitungen.

12. Erdung oder Polarisierung
Dieses Erzeugnis ist mit einem Schutzkontaktstecker mit drei Leitern ausgerüstet, mit einem Erdungskontakt. Dieser Stecker paßt nur in ein schuko-Steckdose. Dies ist eine Sicherheitsmaßnahme. Wenn Sie den Stecker nicht in die Steckdose stecken können, so wenden Sie sich bitte an ihren Elektriker, damit er die veraltete Schuts des Schutzkontaktsteckers unwirksam.

13. Netzkabelschutz
Netzkabel sollten so verlegt werden, deß möglichst nicht darauf getreten wird und daß sie nicht eingeklemmt werden, mit besonderer Beachtung der kabel an Stackern, Verlängerungskabeln und dem Austritt des Kabels aus dem Erzeugnis.

14. Blitzschlag

Für zusätzlichen Schutz des Erzeugnisses während eines Gewitters oder bei Nichtverwendung für lange Zeit den Stecker aus der Steckdose ziehen. Dies verhütet Beschädigung durch Blitzschlag und Netzspannungsstöße.

15. Überlastung

Wandsteckdosen, Verlängerungskabel und eingebaute Bequemlickkeitssteckdosen nicht überlasten, da dies Feuer oder elektrischen Schlag verursachen kann.

16. Eindringen von Fremdkörpern und Flüssigkeit

Niemals Objekte irgendwelcher Art durch die Öffnungen in das Gerät schieben, da diese unter hoher Spannung stehende Teile berühren oder kurzschließen können, wodurch es zu Feuer oder elektrischem Schlag kommen kann. Niemals Flüssigkeiten irgendwelcher Art auf das Erzeugnis verschütten.

17. Entflammbare und explosive Substanzen

Vermeiden Sie Verwendung dieses Erzeugnisses an Orten mit Gasen bzw. entflammbaren oder explosiven Substanzen in der direkten Umgebung.

18. Starke stöße oder Vibrationen

Setzen Sie das Erzeugnis beim Transport nicht starken Stößen oder Vibrationen aus.

19. Wartung

Versuchen Sie nicht, dieses Erzeugnis Selbst zu warten, da Sie sich durch Öffnen bzw. Entfernen von Abdeckungen hohen Spannungen und sonstigen Gefährdungen ausserzen können.
Beziehen Sie sich für jegliche Wartung auf qualifiziertes Wartungspersonal.

20. Beschädigung, die Wartung erfordert

Ziehen Sie den Stecker dieses Erzeugnisses aus der Steckdose und wenden Sie sich an qualifiziertes Wartungspersonal, wenn eine der folgenden Bedingungen vorliegt:

a. Wenn das Netzkabel oder der Stecker beschädigt ist.
b. Bei Eindringen von Flüssigkeit oder Fremdkörpern in das Gerät.
c. Wenn das Erzeugnis Regen oder Wasser ausgesetzt worden ist.
d. Wenn das Erzeugnis bei Befolgen der Bedienungsanleitungen nicht normal funktioniert.

Nur die Regelelemente verstellen, die in den Bedienungsanleitungen behandelt werden, da unangemessene Einstellung anderer Regelelemente Beschädigung verursachen kann und oft beträchtliche Arbeit durch einen qualifizierten Techniker erfordert, um das Erzeugnis wieder, zu normalem Betrieb zurückzubringen.

e. Wenn das Erzeugnis fallen gelassen oder beschädigt worden ist.
f. Wenn das Erzeugnis eine klare Änderung in der Leistung zeigt-dies weist darauf hin, daß Wartung erforderlich ist.

21. Ersatzteile

Wenn Ersatzteile erforderlich sind, darauf achten, daß der Wartungstechniker nur die vom Hersteller festgelegten Ersatzteile oder Teile mit den gleichen Charakteristiken wie die ursprünglichen Teile verwendet. Unautorisierte Ersatzteile können Feuer, elektrischen Schlag oder sonstige Gefährdungen verursachen.

22. Sicherheitsprüfung

Bitten Sie den Wartungstechniker nach der Vollendung von Wartung oder Reparaturarbeiten an diesem Erzeugnis um die Durchführung von Sicherheitsprüfungen, um zu bestimmen, daß das Erzeugnis im angemissenen Betriebszustand ist.

23. Anbringung an der Wand oder an der Decke

Das Erzeugnis sollte nur entsprechend den Empfehlungen des Herstellers an einer Wand oder an der Decke angebracht werden.

24. Wärme

Das Erzeugnis sollte fern von Wärmequellen wie Radiatoren, Heizwiderständen, Öfen und anderen Wärme erzeugenden Erzeugnissen (einschließlich Verstärkern) aufgestellt werden.

MISES EN GARDE IMPORTANTES

1. Lire les instructions
Lire toutes les instructions de sécurité et de fonctionnement avant de faire fonctionner l'appareil.

2. Conserver ces instructions
Conserver les instructions de sécurité et de fonctionnement á des fins de référence ultérieure.

3. Tenir compte des avertissements
Tous les avertissements qui figurent sur l'appareil et dans le mode d'emploi devront être respectés.

4. Observer les instructions
Observer toutes les instructions de fonctionnement et d'utilisation.

5. Nettoyage
Avant de procéder au nettoyage, débrancher l'appareil de la prise secteur. Ne pas utiliser de produits de nettoyage liquides ou en aérosol.
Nettoyer l'appareil avec un chiffon humide.

6. Fixations
Ne pas utiliser de fixations non recommandées par le fabricant de l'appareil car elles pourraient être source de danger.

7. Eau et humidité
Ne pas utiliser l'appareil á proximité d'eau-par exemple prés d'une baignoire, d'un lavabo, d'un évier ou d'un bac á lessive, dans un sous-sol humide, ou prés d'une piscine, etc.

8. Accessoires
Ne pas placer l'appareil sur un chariot, un socle, un pied, un support ou one table instables L'appareil pourrait tomber, blessant griévement des enfants ou des adultes, et étant sérieusement endommagé. Utiliser exclusivement le chariot, le socle, le pied, le support ou la table recommandés par le fabricant, ou vendus avec l'appareil. Pour tout montage de l'appareil, respecter les instructions du fabricant, et utiliser á cette fin l'accessoire de montage recommandé par le fabricant.

9. L'appareil monté sur son chariot devra être déplacé avec précaution.
Des arrêts brusques, une force excessive et des surfaces irréguliéres pourraient provoquer le renversement de l'ensemble appareil-chariot.

10. Ventilation
Les fentes et les ouvertures du coffret sont prévues pour la ventilation ainsi que pour garantir un fonctionnement en toute sécurité de l'appareil et le protéger de toute surchauffe, et ces ouvertures ne devront donc être ni obstruées ni recouvertes. Ne jamais obstruer les ouvertures en placant l'appareil sur un lit, un sofa, un tapis ou toute surface similaire. Ne jamais placer l'appareil dans un support confiné, par exemple une bibliothéque ou une é tagé re, sans ventilation suffisante ou sans repecter les instructions du fabricant.

11. Sources d'allmentation
L'appareil devra être alimenté exclusivement sur le type d'alimentation indiqué sur l'étiquette signalétique. Sil'on n'est pas sûr du type d'alimentatio du local, consulter le revendeur de l'appareil ou la compagnie d'électricité locale. Pour les appareils qui fonctionnent sur batterie ou sur d'autres sources, voir le mode d'emploi.

12. Mise á la terre ou polarisation
L'appareil est doté d'une fiche trifilaire avec mise á la terre, dont la troisiéme broche assure la mise á la terre. Cette fiche ne rentrera que dans les prises trifilaires de mise á la terre. Ceci est une mesure de sécurité. Si la fiche ne rentre pas dans la prise, faire remplacer la prise désuéte par un électricien.
Ne pas rendre vaine la measure de sécurité assurée par cette prise avec mise á la terre.

13. Protection du cordon d'alimentation
Acheminer les cordons d'alimentation de facon qu'on ne risque pas de marcher dessus ou de les coincer sous un objet placé dessus ou contre eux.
Faire particuliérement attention aux fiches des cordons, á la proximité des prises, et á l'endroit oú ils ressortent de l'appareil.

14. Foudre

Pour renforcer la protection de l'appareil pendant un orage, ou si l'on s'en éloigne ou qu'on reste longtemps sans l'utiliser, le débrancher de la source d'alimentation. Ceci permettra d'éviter tout dommage de l'appareil dú á la foudre et aux surtensions de ligne.

15. Surcharge

Ne pas surcharger les prises, rallonges et prises multiples car cela pourrait entraîner un risque de feu ou de choc électrique.

16. Pénétration d'objets et de liquides

Ne jamais enfoncer d'objets d'aucune sorte dans les ouvertures de l'appareil car ils pourraient toucher des points de tension dangereuse ou court-circuiter des piéces, ce qui pourrait provoquer un feu ou un choc électrique. Ne jamais renverser de liquide d'aucune sorte sur l'appareil.

17. Substances inflammabes et explosives

Eviter d'utiliser l'appareil en présence de gaz, ainsi qu'á proximité immédiate de substances inflammables et explosives.

18. Chocs ou vibrations violents

Lorsqu'on transporte l'appareil, ne pas le soumettre á des chocs ou des vibrations violents.

19. Réparations

Ne pas tenter de réparer l'aapareil soi-même car le fait d'ouvrir ou de retirer les caches risque d'exposer l'utilisateur á des tensions dangereuses notamment. Confier toute réparation á un personnel qualifié.

20. Dommages nécessitant réparations

Débrancher l'appareil de la source d'alimentation et confier les réparations á un personnel qualifié dans les cas suivants:

a. Lorsque le cordon d'alimentation ou sa fiche sont endommagés
b. Si du liquide s'est renversé sur l'appareil ou que des objets sont tombés dedans
c. Si l'appareil a été exposé á la pluie ou á l'eau.
d. Si l'appareil ne fonctionne pas normalement lorsqu'on observe les instructions d'utilisation.

Ne régler que les commandes couvertes par le mode d'emploi ; en effet, un réglage incorrect des autres commandes pourrait entrainer des dommages et nécessiteront souvent des travaux de réparation coûteux par un technicien qualifié pour remettre l'appareil en état de marche.

e. Si l'appareil est tombé ou qu'il a été endommagé.
f. Si l'appareil affiche une nette modification de ses performances, cela signifie qu'il a besoin d'être réparé.

21. Piéces de rechange

Si l'on a besoin de piéces de rechange, veiller á ce que le technicien de réparation utilise exclusivement les piéces de rechange spécifiées par le fabricant ou des piéces ayant les mêmes caractéristiques que les piéces d'origine. Les piéces de rechange non autorisées risquent de provoquer un feu, un choc électrique et autres dangers.

22. Vérificaton de sécurité

Aprés tout travail d'entretien ou de réparation de l'appareil, demander au technicien de réparation d'effectuer les vérifications de sécurité pour s'assurer que l'appareil est en bon état de marche.

23.Montage au mur ou au plafond

L'appareil ne pourra être monté au mur ou au plafond que de la maniére recommandée par le fabricant.

24. Chaleur

Eloigner l'appareil des sources de chaleur, telles que radiateurs, appareils de chauffage, cuisiniéres, et de tour produit engendrant de la chaleur (y compris les amplificateurs).

IMPORTANT NOTICE

For USA

These products have been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING

Changes or modifications not expressly approved by Hitachi Kokusai Electric responsible for compliance could void the user's authority to operate the equipment.

For Canada

This product does not exceed the class A/class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations.
Le présent appareil n'émet pas de bruits radioélectriques dépassant les limités applicable aux appareils numériques de classe A prescrites dans le rVglement sur le brouillage radioélectrique édicter par le ministére des communications du canada.

Contents

Outline and features 1
Warnings and cautions when using 3
Facility names and functions 5
Lens installation 11
Lens flangeback adjustment 12
White shading adjustment 13
Fiber adapter installation 15
Tripod mounting 16
5-inch viewfinder attachment 17
Viewfinder adjustment 18
Filter selection 20
White and black balance adjustment 21
Electronic shutter setting 27
Setup card setting 29
Function menu 36
Specifications 56
Studio system operation 60
Service information 61

Outline and features

The SK-HD1000 is a high-performance portable HDTV Studio and EFP camera.
With its new 2.3 million pixels native 1080i 3-CCD, the SK-HD1000 provides outstanding performance. The camera offers sharper and cleaner HD images due to its 14-bit A/D converters and Hitachi's implementation of the latest digital processing technology. The camera achieves outstanding high sensitivity and a low vertical smear specifications.

Outstanding Features

■High resolution

The latest generation 2/3-inch 2.3 million pixels CCD with micro lenses and digital multi speed signal processing circuits provide a horizontal resolution performance of 1100 TV lines (luminance channel).

■Latest generation Digital technology

The brand new, power efficient Digital Signal Processor LSI with 65nm design rule and 14-bit analog-to-digital conversion provide very faithful video image reproduction and quality. Digital video processing and encoding provide low interference and high stability.

■ High sensitivity and Signal to Noise ratio

Low-noise circuit technology provide a signal to noise ratio of 60dB.
Even at high gain, clear images are obtained with little noise.
The standard sensitivity is F10 at 2000lx and minimum illumination is 3l x with F1.4 lens iris stop.

■ The new streamlined body design

The new streamlined dockable camera body design has a low center of gravity for ease of use on the shoulder. The lightweight, 2-piece dockable-style camera body is designed with a robust ENG Viewfinder attachment, and active cooling side panels.

■Setup card

A small plug-in setup card (SD card) stores the user setup and Scene File information.

■Versatile CCD drive functions

Four modes of shutter operation are provided:

- •Five PRESET electronic shutter speeds
- •LOCK SCAN to image computer monitors without flicker
- •Automatic Electronic Shutter (AES) maintains the video level with a fixed lens F-stop.
- •Charge Controlled Frame (CC FRM) offers improved vertical resolution.

■Digital processing improves Image Highlight Quality

- • Knee saturation and auto-knee
  The auto knee provides a wide dynamic range by dynamically compressing the video level above 100%. Knee saturation restores color saturation to scene highlights above 100%.
- • Automatic Skin Tone Detail Circuits
  Skin tone detail smoothes and softens facial lines and blemishes without sacrificing overall scene detail, also provides two separate settings that can be used separately or simultaneously.
  Automatic Skin tone detail provides an easy and fast means to optimize Skin tone detail.
- •Variable Detail Boost Frequency
  The detail frequency can be adjusted to provide coarse or fine contours around edges of subjects in the scene thereby reproducing a natural and pleasing picture.
- •12-Vector and Linear Matrix masking
  The 12-vector and linear matrix provide the user a wide latitude in subject image color control.
- • Skin Tone masking
  Skin tone masking provides "fine" "Painting" (hue and saturation) of Skin tones without effecting other colors in the scene.
- •Gray Scale Automatic Setup
  This "through the lens" automatic setup is uses a standard gray scale chart to automatically setup gain, gamma, black and flare thus saving the video operator time and effort.
- •Automatic Shading
  Automatic shading corrects white vertical shading at the push of a button.
  This function provides separate memory of lens' modulation shading characteristics to optimize the X1 and X2 lens extender positions.

Outline and features

■Extensive User-Friendly

- •Quick focus
  Quick Focus automatically opens the iris then sets the video level with the electric shutter. With the resulting shallow depth of focus, the exact focus point can be set easily.
- • User-Programmable Switches (CS-1)
  The user can assign Zebra, marker, VFDTL,Quick Focus or FAW to either of the programmable switches for ease of operation.
- •Scene Files
  Gain, detail, masking, gamma and other settings can be stored in four scene file memories.
- •Audio test tone (1kHz) is output when color bars are selected.
- •Microphone input accepts phantom power supply.

■Viewfinder displays

- •Two mode zebra
  Menu selection of over-level or between range zebra is provided.
- •Safety zone and center mark display

■High performance viewfinder (VF-402)

- •2-inch black and white CRT monitor, aspect 16:9.
- •High VF resolution allows easy focusing.
- •Improved viewing angle and distance from eye with employed larger VF lens.
- •Adjustable mechanical VF positioning and tilt to set best viewing.
- •Built-in top tally
- •Red tally and green tally provided

■Low center of gravity design.

- •Main operating switches are grouped forward for easy access.
- •Featherweight design is ideal for portable use.

■Studio system configurations

SK-HD1000 camera system can be composed in combination with the CU-3300 fiber base station, CA-HF1000 fiber adaptor, RU-3400VR/JY camera control panel, VF-HD500 5-inch viewfinder for studio system.

■Remote control filter wheel

A convenient remote controller can be used to select optical filters.

Warnings and cautions when using

⚠ WARNING

■Viewfinder lens hazard

- Do not point the eyelens toward the sun or other bright light source. There is danger of physical burns and loss of eyesight.
- Do not place the viewfinder with the lens pointed toward the sun. There is risk of burn damage to the viewfinder interior.

⚠ CAUTION

■Power supply

The specified power supply input voltage of this camera is 12VDC. Be sure to use the designated power supply.

■Do not disassemble or modify

The camera contains precision internal components. Do not open the cover or disturb switches and controls other than designated. There is risk of impaired performance and damage.

■Keep foreign object out of interior

Entry of water, metallic or other foreign materials can cause failure and damage.

■Select use and storage locations carefully

Avoid using or storing the equipment in the following types of locations. Impaired performance and damage can be caused.

- Extremely hot or cold locations (exceeding -10 to 45°C), such as in enclosed vehicles.
- Subject to strong vibration.
- Humid or dusty locations.
- Salt spray or corrosive gases.
- Strong electromagnetic fields (e.g., near TV or radio transmitters).
- Where exposed to rain.

■Do not cover or otherwise obstruct camera heat dissipation during operation.

⚠ WARNING

■Viewfinder high voltage

- Do not open the viewfinder cover. There is danger of touching internal high voltage components.

⚠ CAUTION

■When connecting and disconnecting lens, microphone and other cables, grasp the connector by the body, not the attached cable. Cables can be damaged by pulling on them.

■Note when transporting

When transporting by hand, use the carrying case. If shipping by truck or other means, pack in the carrying case, then use further cushioning and pack in a sturdy carton.

■Tripod

Use a recommended tripod and install the camera correctly.

■Cleaning

Use a photographers air blower to clear dust from the lens and filters. Wipe the case with a soft dry cloth. Do not use volatile solvents, as these may deform the materials.

■Fuse replacement

Important: Although spare fuses are provided, the fuse must be replaced only by a qualified service technician.

■In event of difficulty

Disconnect from power and contact the nearest Hitachi Kokusai Electric service agency.

Warnings and cautions when using

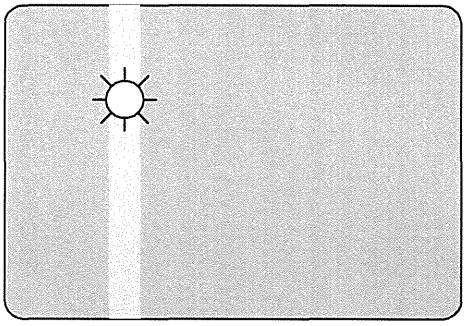
NOTE

************CCD characteristic phenomena************

The following types of phenomena are innate characteristics of a charge coupled device (CCD) and are not malfunctions. Be aware of these when using a CCD camera for broadcast or other demanding applications.

Smear

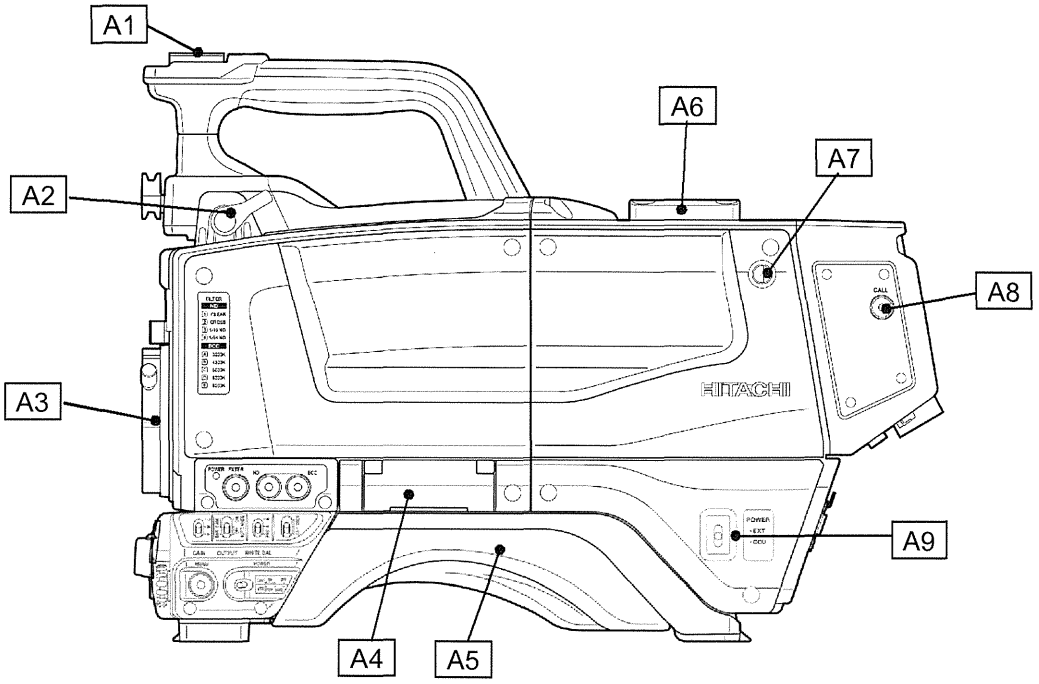
When a bright object is picked up, thin trails appear above and below the image. The effect is more pronounced at high electronic shutter speeds.



Fixed pattern

When operate at high temperature, a fixed pattern (vertical stripes, white dots) can appear. The pattern is more easily seen when the camera sensitivity is raised.

Facility names and functions A



A1 **Accessory shoe**

A small spotlight can be attached without the light striking the lens, viewfinder or microphone.

A2 **Viewfinder front to rear lock screw**

Secures the front to rear position adjustment of the 2-inch viewfinder.

A3 **Lens mount**

Bayonet type lens mount.

A4 **Setup card slot(SD card)**

Slot for inserting setup card.

A5 **Shoulder pad**

A6 **Viewfinder attachment**

The 5-inch or other viewfinder can be attached by using viewfinder adapter the AT-500/AT-550.

A7 **Shoulder belt hook**

Attachment for separately sold shoulder belt.

A8 **CALL button**

Press to call the CCU.

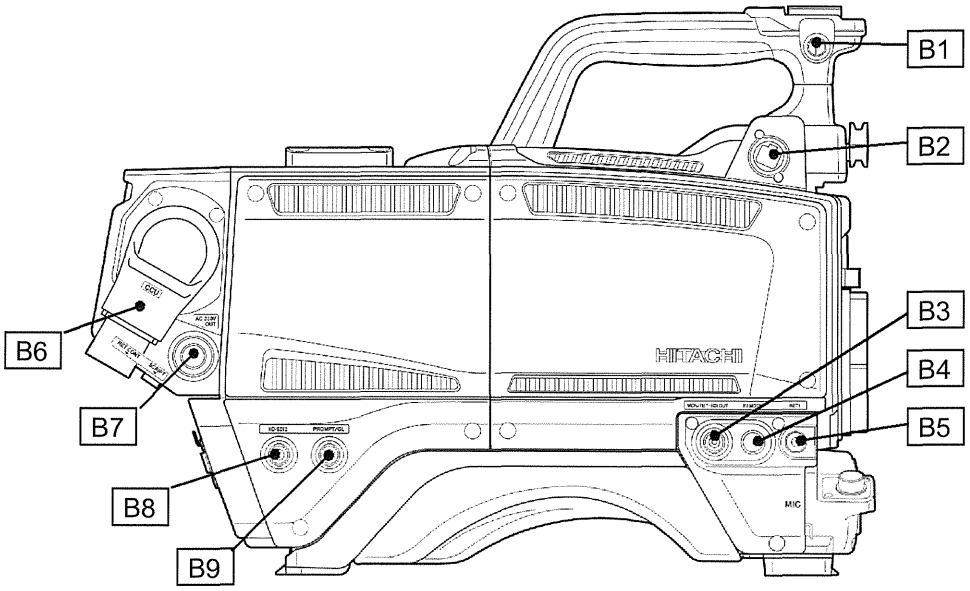
A9 **POWER switch**

EXT : Power supplied via DC input connector.

CCU : Power supplied via fiber cable.

When power is supplied via the fiber cable and the switch is set to EXT, the protector operates to cut off the camera head power.

Facility names and functions B



B1 Shoulder belt hook
Attachment for separately sold shoulder belt.

B2 Viewfinder connector
Connect the accessory viewfinder.

B3 MONI/RET output connector (BNC)
HD-SDI signal output for monitor (75Ω). The same character signal as the viewfinder is superimposed on the video signal to allow checking the setting menu from the monitor screen.

B4 REMOTE connector (4 pin)
Connection for camera control panel or personal computer.

B5 RET button

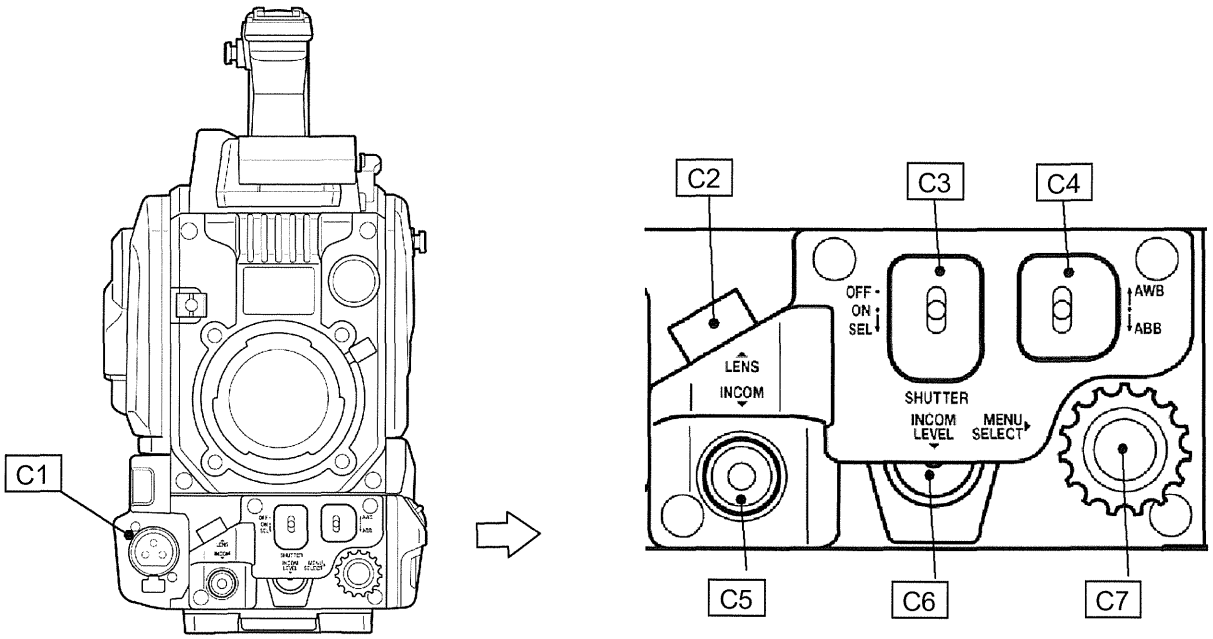
B6 Fiber connector

B7 AC230V output connector
Outputs the 230 VAC.

B8 HD-SDI2 output connector (BNC)
HD-SDI signal output (75Ω).

B9 PROMPT output / GL input connector (BNC)
CCU system : Prompter signal output.
Camera head : Genlock signal input.

Facility names and functions C



C1 **MIC connector (XLR, 3P)**
Connection for separately sold microphone. Microphone power is supplied from the connector.

C2 **LENS connector (12 pin)**
Connection for lens cable.

C3 **SHUTTER switch**
Set to on to use the electronic shutter. At the SEL position, the shutter speed and mode are changed in the range set beforehand at the setting menu.

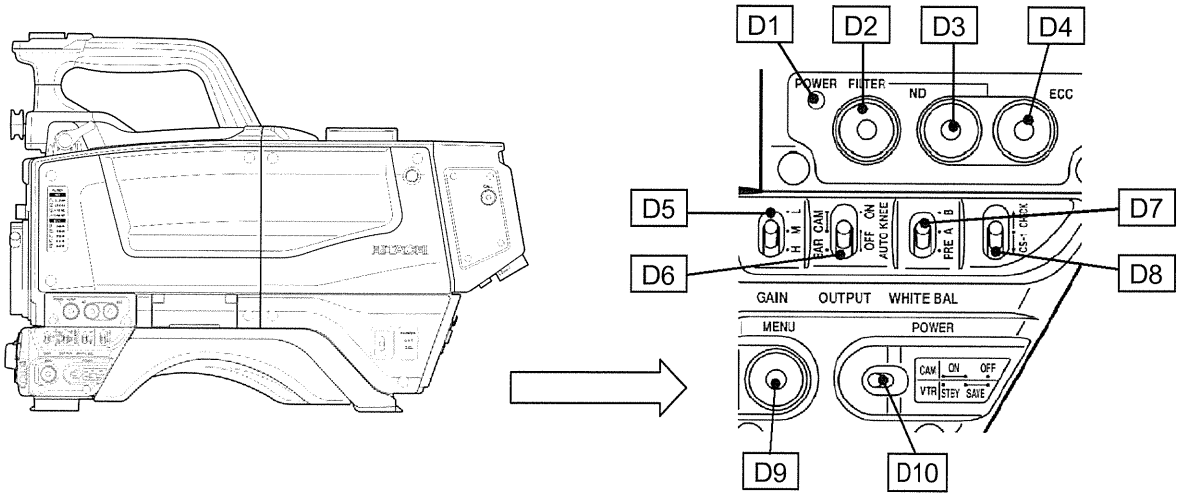
C4 **AUTO W/B BAL switch**
AWB: Select for automatic white balance adjustment. Set the WHITE BAL switch D7 to A or B.
ABB: Select for automatic black balance adjustment.

C5 **INCOM MIC on/off button**
Turns on/off the microphone of intercom 1 or 2.

C6 **INCOM LEVEL control**
The intercom level can be adjusted when selected INCOM MIC FRONT with fiber adapter CA-HF1000.

C7 **MENU SEL knob**

Facility names and functions D



D1 POWER LED

Off : Camera power not supplied.

Lights (green) : Camera power switch on.

D2 FILTER button

Push both ND button or ECC button.

D3 ND button

Optical filter rotates.

D4 ECC button

Ecc filter selects.

D5 GAIN switch

Selects video circuit gain according to scene brightness. Low, medium and high are indicated beforehand in the setting menu.

D6 OUTPUT/AUTO KNEE switch

BAR: Color bar signal output.

CAM/AUTO KNEE OFF:

Pickup signal from camera obtained.
Auto knee circuit inoperative.

CAM/AUTO KNEE ON:

Auto knee circuit operates.

D7 WHITE BAL switch

PRE: The white balance is set to the memory value for 3200K.

A or B: When the AUTO W/B BAL switch C4 is set to AWB, the white balance is adjusted automatically.

D8 CS-1/CHECK switch

CHECK: Viewfinder display of camera operating data such as switch status, recording elapsed time and audio level.

CS-1: On/off of function set at the CUSTOM SW menu.

D9 MENU button

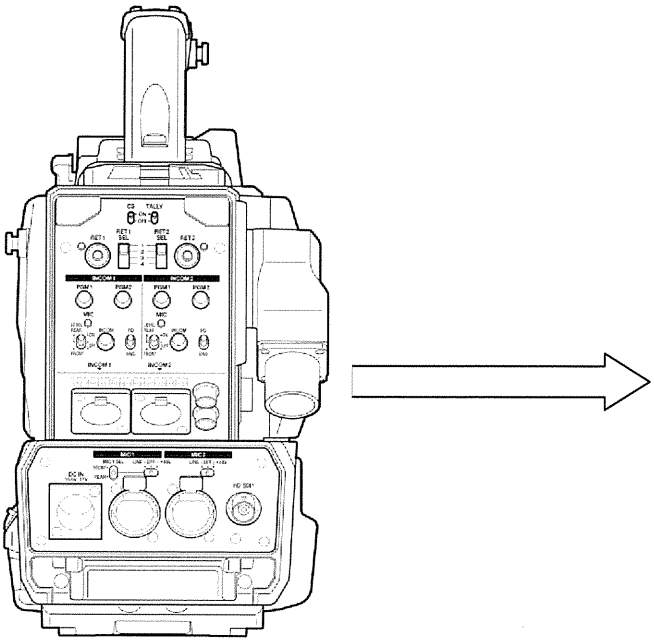
The menu is displayed in VF and MONI/RET signal.

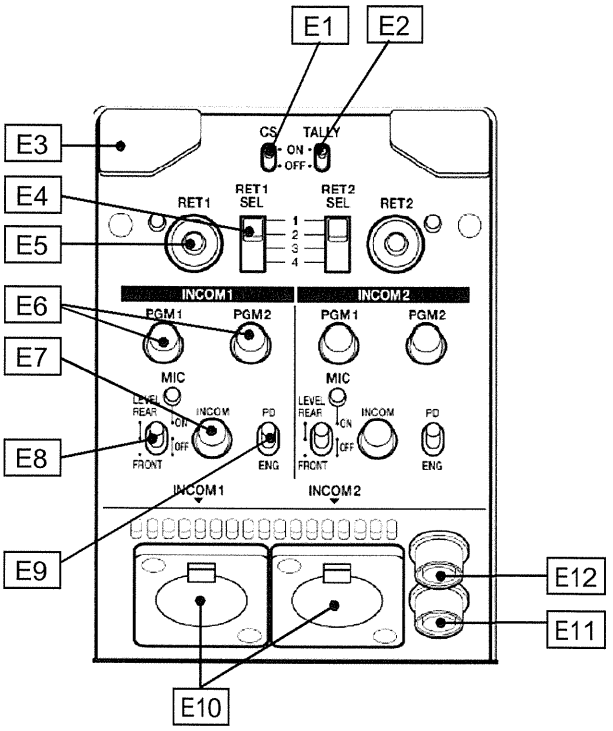
D10 POWER switch

The power switch is for ENG operation , does not work under system operation.

- Note -
WHITE BAL A and B is for ENG operation, WHITE BAL A and B become common data under system operation.

Facility names and functions E





E1 **CS switch**
On/off of function set at the CUSTOM SW menu.

E2 **TALLY ON/OFF switch**
Turn off this switch to prevent R/G TALLY LED.

E3 **R/G TALLY LED**
Lights at green or red tally input.

E4 **RET1 transmission signal switch**
This switch is used to select a signal input to the RET-1 of the CCU. This switch is a four-position slide switch, and the type of signals sent through this switch can be set by menu.

E5 **RET1 switch**
Selects CCU RET-1 input.
Shown on camera viewfinder only while button is pressed

E6 **INCOM1 PGM 1 / PGM 2 level**
Controls the receiving sound volume of the program.

E7 **INCOM 1 intercom level**
Controls the receiving sound volume of the intercom.

E8 **INCOM 1 TALK ON/OFF switch**
Turns on/off the microphone of intercom 1.

E9 **INCOM 1 PD/ENG select switch**
This switch is used to select the PD or ENG input of the external intercom system to be connected to the CCU rear side.

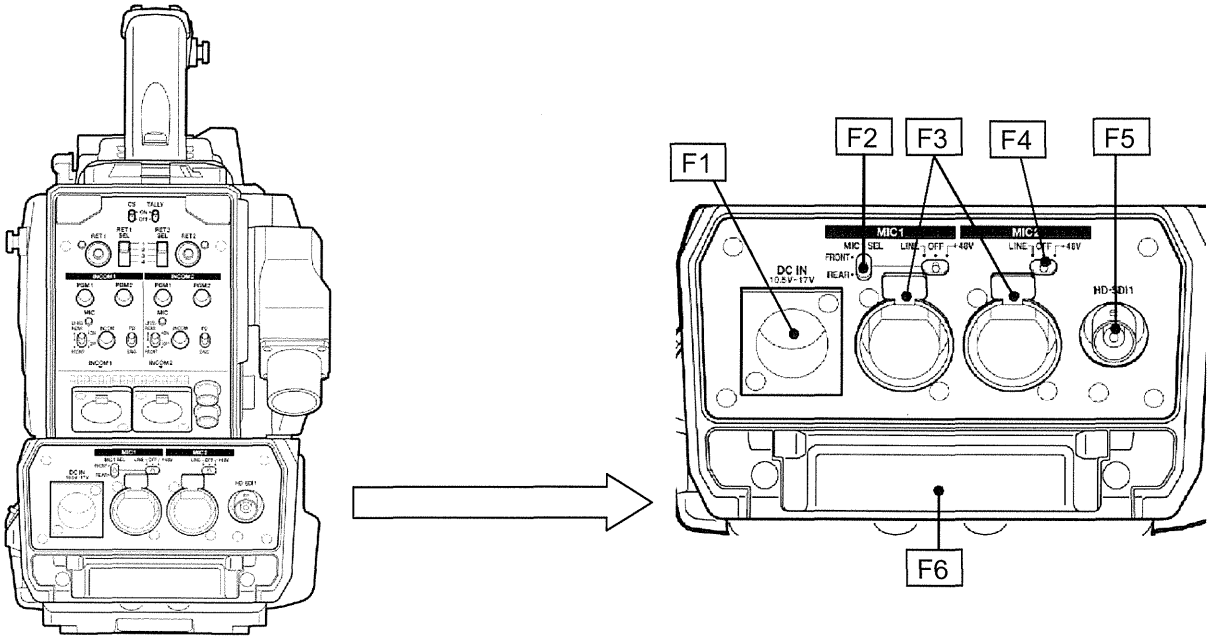
E10 **INTERCOM 1 / INTERCOM 2 connector (XLR 5 pin)**
The headset can be connected.

> - Note -
> Connect neither four pins nor five pins in the head set.

E11 **SCRIPT connector**
Lights the 12V/1.0A max script lamp.

E12 **RET CONT connector**
This signal is used to remotely control TALK ON/OFF, RET1 ON/OFF, and RET2 ON/OFF for the INTERCOM 1.

Facility names and functions F



F1 **DC IN connector (XLR 4 pin)**
This connector should be used when the camera is used in self-containment mode.

F2 **MIC SEL switch**
The front microphone connector or rear microphone connector mike can be selected.

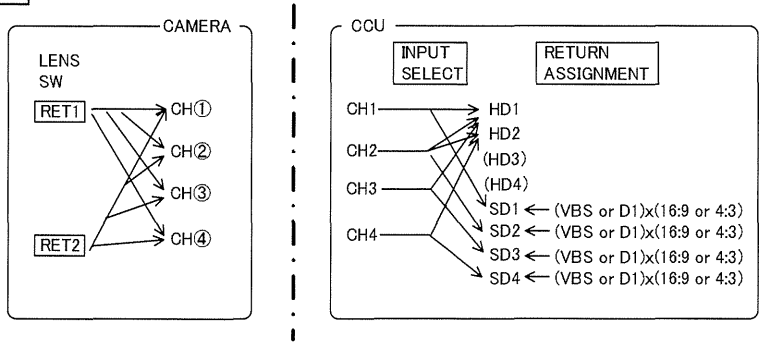
F3 **MIC1 /MIC2 connector (XLR 3 pin)**
Connection for separately sold microphone.

F4 **MIC LINE/OFF/+48V switch**
LINE: For a line level signal source
OFF: Not to supply a power
+48v: To supply a power of +48VDC

F5 **HD-SDI 1 output connector (BNC)**
Outputs digital serial video signals.

F6 **Enhancing connector (D-sub 29pin)**
For external interface.

E4 Return Signal selection (RET1&RET2)



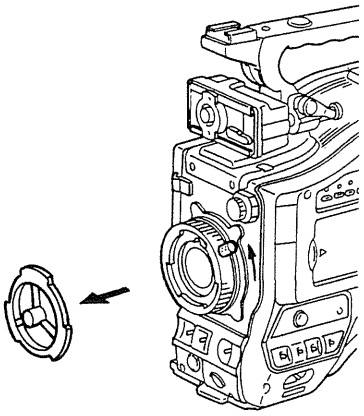
RET1 transmission signal SW

Lens installation

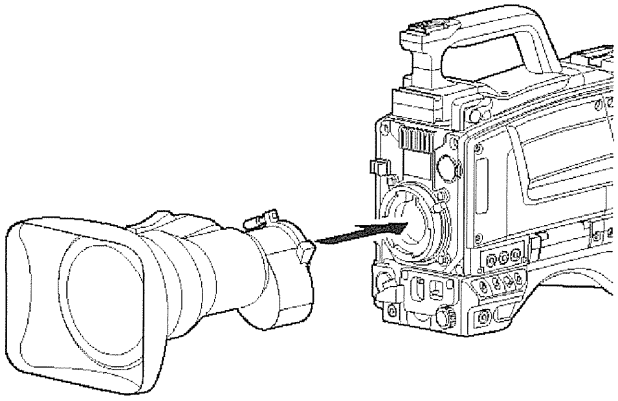
Lens installation

Install according to the following procedure.

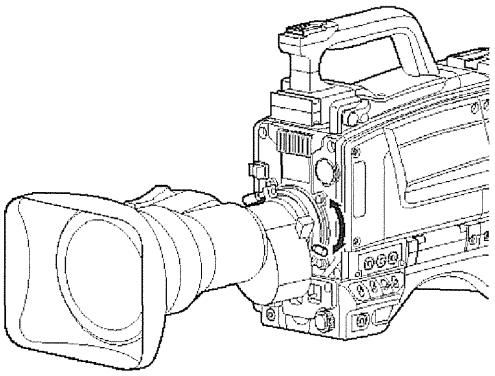
1. Raise the lens lever and remove the mount cap.



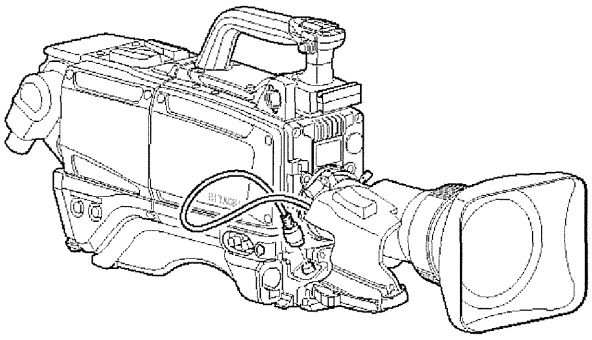
2. Align the lens center mark with the indent at the upper part of the lens mount and install the lens.



3. Lower the lens lever to secure the lens.



4. Engage the cable with the cable clamp and connect it to the lens connector.



Notes

The following adjustments may be required according to the type of lens.

1. Lens flangeback, 2. Lens white shading.
3. Lens auto iris speed, 4. Lens iris close limit. (AUTO IRIS menu)

Refer to the lens instructions when using the lens.

1. RET switch: ON/OFF for RET 1 signal.
   The CA-HD1000 has RET1 SEL switch for signal 1 to 4 selections. (Refer to pages 9)
1. VTR switch: Work for TALK or RET-2 function with CUSTOM SW MENU setting.
   TALK: INCOM TALK ON/OFF,
   RET-2: RET 2 ON/OFF selected by RET-2 SEL in the CA-HD1000. (Refer to pages 9
2. EXTENDER : VF LED lights and VF status display" E "super impose.

Lens flangeback adjustment

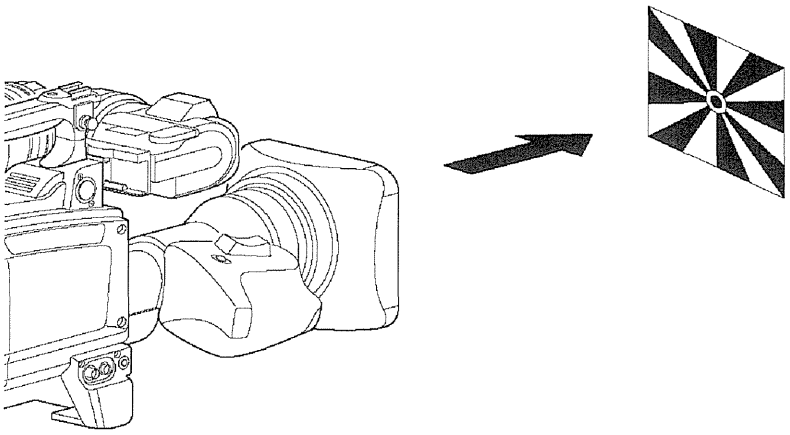
Lens flangeback adjustment

When operating a zoom lens, if the focus is not precisely aligned at both the telephoto and wide angle extremes of the lens, the flangeback (distance from the lens mounting plane to the focal plane) is adjusted. This adjustment is generally required only once unless the lens is replaced.

Adjustment

1. Set the lens iris for manual operation.

2. Set a flangeback adjusting chart about 3 meters distant.



3. Open the iris and adjust the lighting to obtain the correct video output level.
If the video level is too high, use a ND filter or electronic shutter.

4. Loosen the FB ring setscrew.

5. By hand or motor, set the zoom ring to the telephoto position.

6. Observe the flangeback chart image and turn the distance ring to adjust the focus.

7. Set the zoom ring to the wide angle position.

8. Turn the FB ring and adjust the focus. Use care not to turn the distance ring.

9. Repeat this process until focus is obtained at both telephoto and wide angle settings.

10. Securely tighten the FB ring setscrew.

·Also, see the lens operating instructions.

White shading adjustment

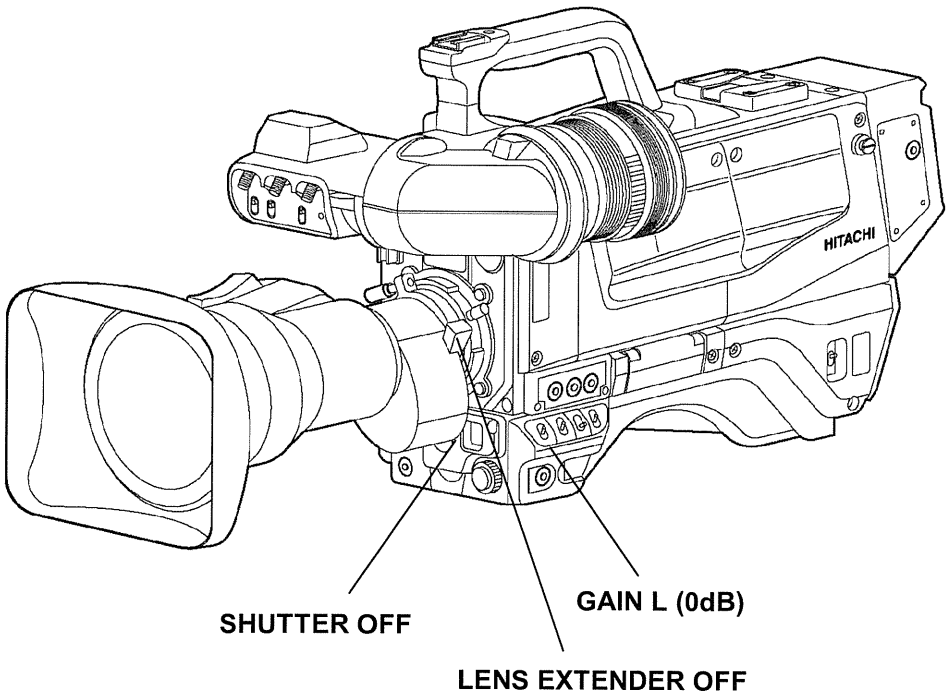
White shading adjustment

White shading adjustment is recommended after replacing the lens.
The adjustment relates to the camera vertical coloration. If the lens includes an extender, the shading can be optimized for both extender on and off modes.
(Vertical coloration refers to an effect whereby the image of an overall white sheet of paper tends toward green at the top and magenta at the bottom, or vice versa.)

Adjustment

1. Install the lens on the camera.
   Be sure to connect the lens cable.

2. Set the electronic shutter to off and the gain to L (0 dB).

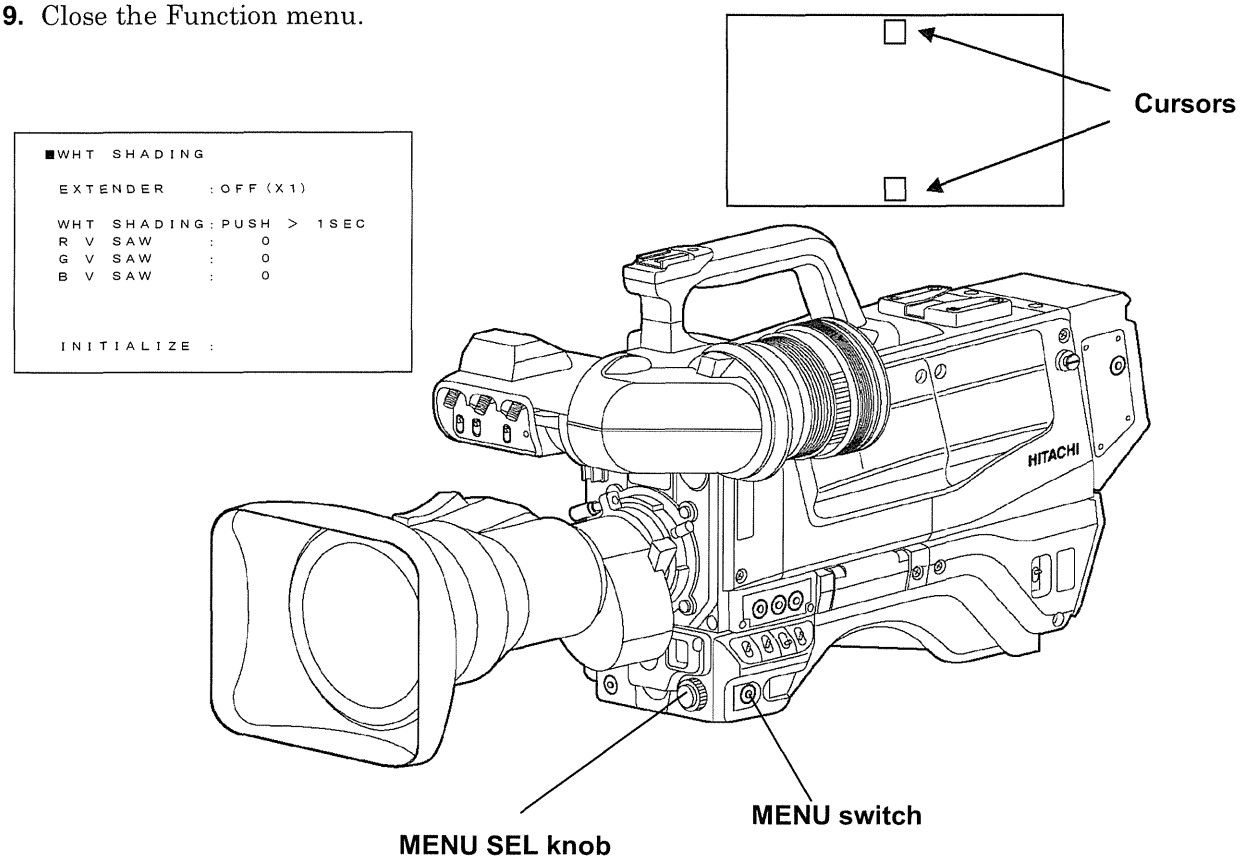


3. Set the lens extender to off.

4. When notice flicker on the monitor which occurred by fluorescent or mercury lighting, use sunlight or halogen as the light source.
   Using auto iris mode for the lens iris, the iris stop should be between F4 and F11. If necessary, adjust the light source level and keep iris stop position in it (be sure the electronic shutter is off).

White shading adjustment

5. Open the WHITE SHADING sub menu from MAINTENANCE menu.
6. Shift cursor to WHT SHADING : PUSH > 1 SEC.
7. Press the knob direction button for about 1 second to adjust white shading. The viewfinder top and bottom cursors flash to indicate automatic white shading adjustment in progress. The cursors extinguish at the end of adjustment.
8. Set the extender (if provided) to on and repeat the above step.
9. Close the Function menu.



White shading adjustment is completed by the above. The adjustment is stored in a nonvolatile memory and ordinarily does not need to be repeated even if the power is switched off.

Notes

1. Precise adjustment may not be obtainable with some special lenses.
2. Even after adjustment, some coloration may occur near the open iris setting. This is due to lens and optical system characteristics and is not a malfunction.

Fiber adapter installation

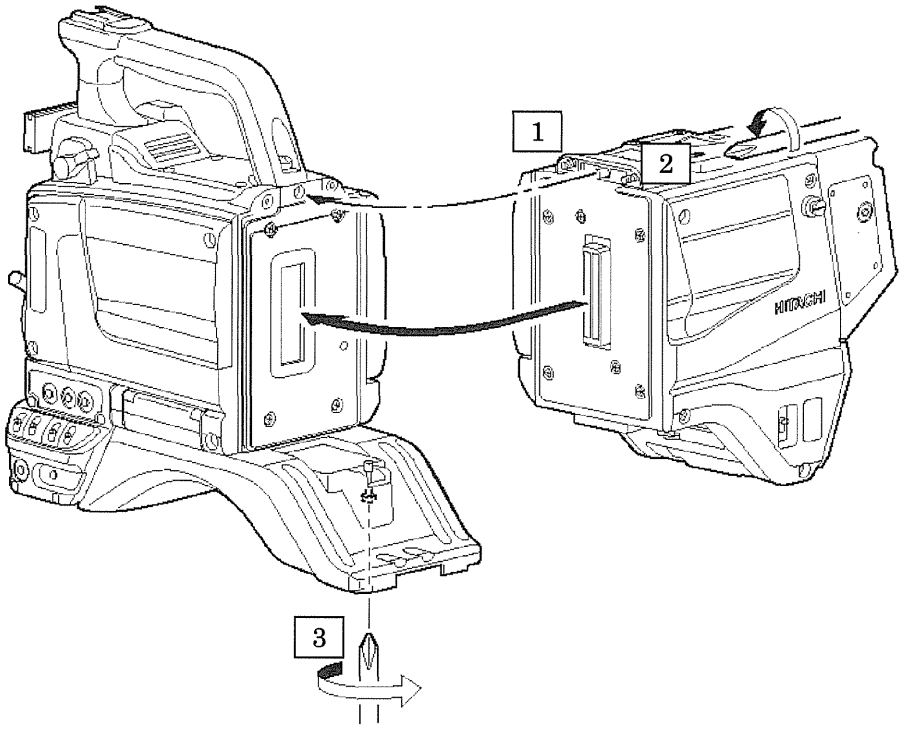
Fiber adapter installation

Install the fiber adapter (option).

Installation

1. Align the adapter guide pin with the camera guide shoe. Press to insert the adapter.

2. Tighten screws 1, 2 and 3 to secure the camera adapter.

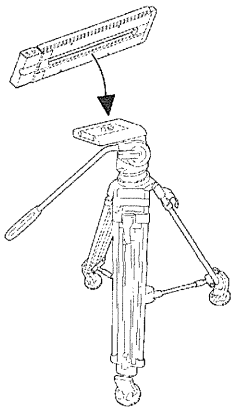


⚠ CAUTION
Tighten screws fully to prevent wobble between adapter and camera.

Tripod mounting

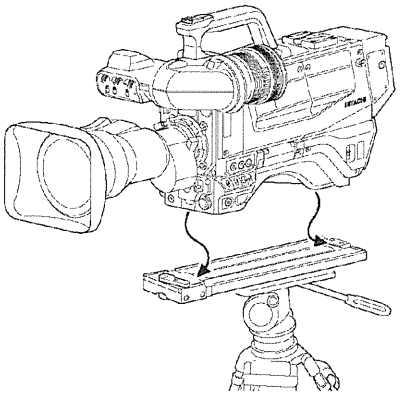
Tripod mounting

Use the accessory TA-Z3 tripod adapter to mount the camera on a tripod.



1. Securely attach the tripod adapter to the tripod. Shift the adapter screw position to obtain the best balance. The adapter can accept two types of screws. Use the screw hole that matches the tripod.

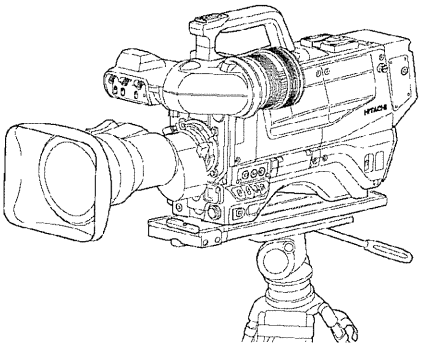
2. Secure the camera on the tripod adapter. Align the hooks of the camera and adapter, then turn the lock lever in the direction indicated by the arrow. A click sound can be heard at the locked position.

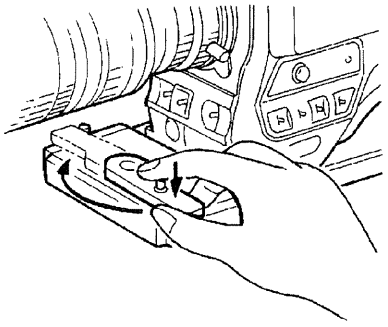


3. Slightly loosen the tripod screw and again check the balance. Shift the adapter to the optimum position and securely tighten the tripod screw.

Detaching

Press the red lock pin and turn the lever in the arrow direction. Remove the camera





⚠CAUTION

1. **The weight can exceed 5kg with the lens and 10kg with a VTR. Use a sturdy tripod that can support more than 10kg. A large size tripod can provide both stability and smooth operation.**
2. **A screw hole is located near the camera tripod adapter hook. Do not use this hole for attaching to the tripod. There is risk of dropping.**

5-inch viewfinder attachment

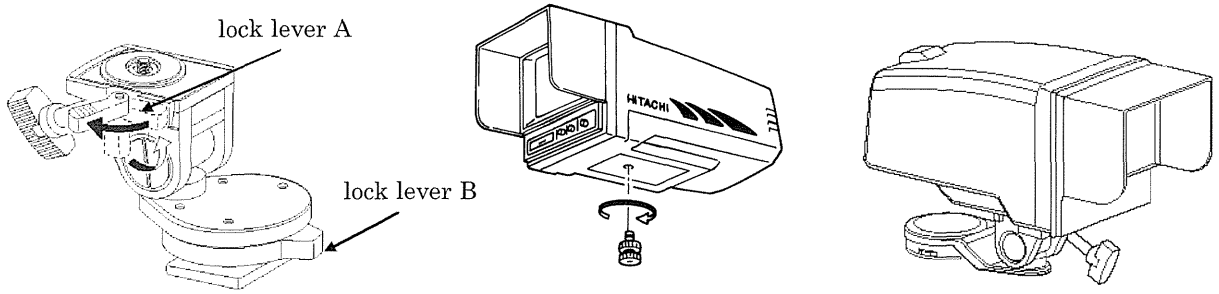
5-inch viewfinder attachment

Use the separately sold AT-500 viewfinder adapter when installing the VF-HD500 5-inch viewfinder.

Installation

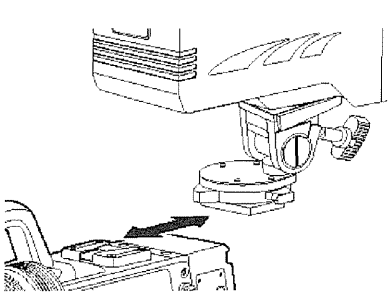
1. Raise the lock lever of the AT-500 horizontally and remove the viewfinder mounting screw from the AT-500. Insert this screw in the bottom of the viewfinder. Insert the screw together with the viewfinder into the AT-500 and set the lock lever forward, then turn the lever clockwise to secure it.

> ⚠ **Warning**
> **Be sure to tilt the lock lever forward and turn it clockwise to tighten it.**
> **If tightening is overlooked, the viewfinder can drop and pose a risk of injury.**

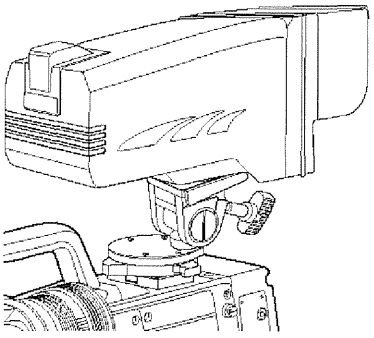


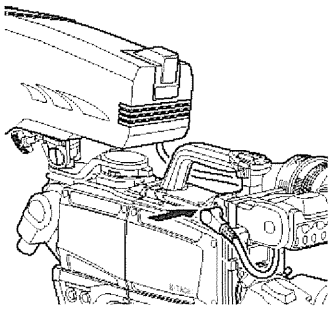
2. Insert the viewfinder and AT-500 into the slot at the rear of the handle and slide them forward until a latching sound is heard from the release knob.

> ⚠ **Warning**
> **Press the release knob to where a latching sound is audible.**
> **If not securely attached, the entire viewfinder can drop and pose a risk of injury.**



Set lock lever B of the AT-500 rearward.

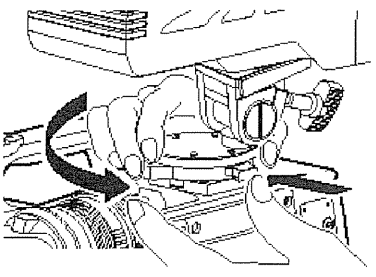




Connect the viewfinder cable to the camera viewfinder connector.

Removal

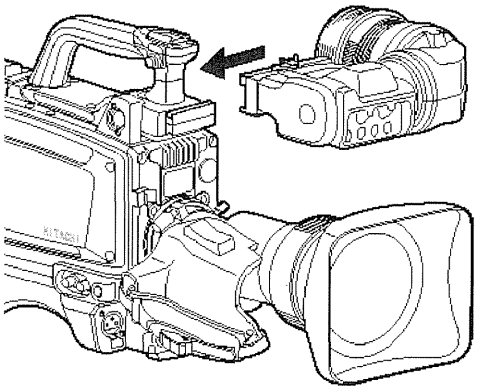
Disconnect the viewfinder cable. Turn the AT-500 lock lever B counter-clockwise and pull the release knob to allow removing both the viewfinder and AT-500.

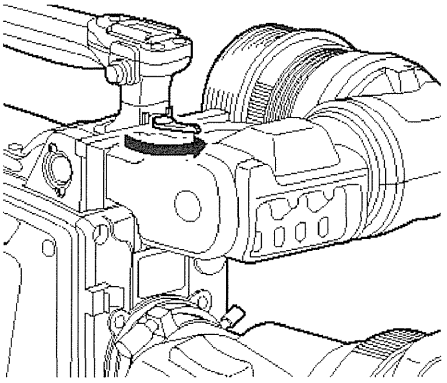


Viewfinder adjustment

Viewfinder installation

1. Turn the lock lever as indicated by the arrow to secure the viewfinder guide.
2. Turn the viewfinder lock lever fully counter-clockwise.
3. Align the 2 viewfinder guide pins with the camera guide holes and insert the viewfinder.
4. Secure the lock lever firmly in the arrow direction.

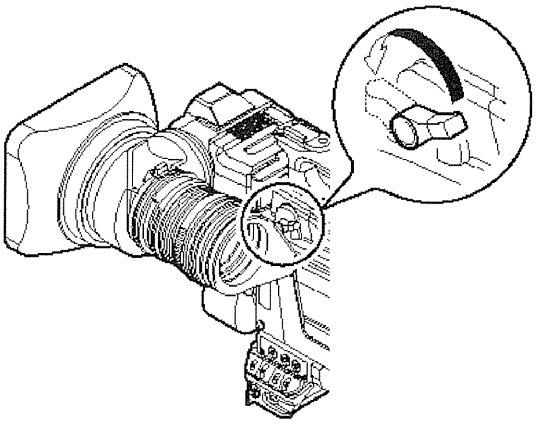




⚠CAUTION
Connect the viewfinder correctly and securely to the viewfinder connector.

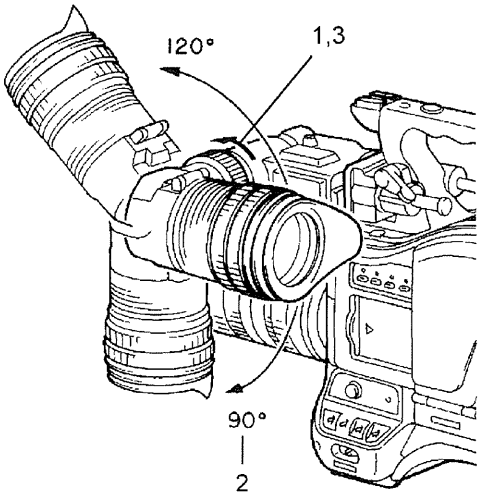
Position adjustment

1. Turn the lock lever in the arrow direction to loosen the horizontal lock.
2. Turn the lock screw in the arrow direction to loosen the front to rear lock.
3. Adjust the viewfinder left to right and front to rear positions for comfortable viewing.
4. Tighten the lock screw firmly.
5. Tighten the lock lever securely.



Eyepiece angle adjustment

1. Turn and loosen the securing ring.
2. Adjust the eyepiece vertical angle for comfortable viewing.
3. Firmly tighten the securing ring.

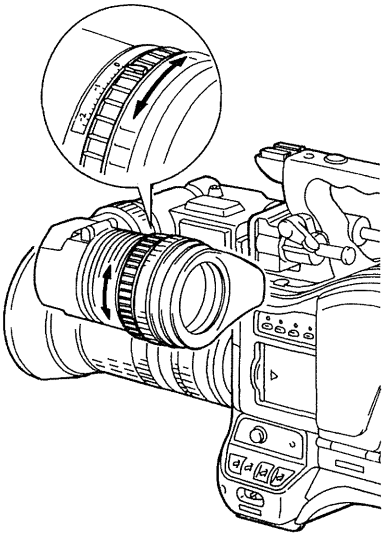


Viewfinder adjustment

Visibility adjustment

The focus can be fine adjusted to individual preference.

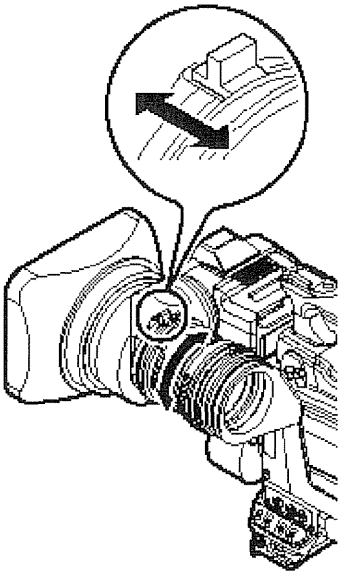
1. Adjust the camera focus.
2. Turn the visibility ring to adjust the focus of the viewfinder image.



Screen adjustments

Adjust the viewfinder screen with following controls.
Brightness: BRIGHT control
Contrast: CONTR control
Peaking: PEAKING control

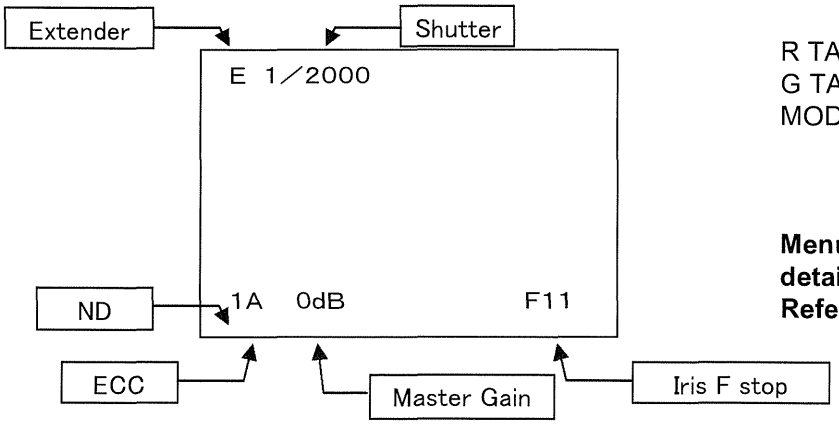
When not using the eyecup, it can be raised out of the way while pressing the flip-up button.



WARNING

1. When the hood is raised, do not look at the sun or other bright light through and eyepiece lens. There is danger of eye damage.
2. When the hood is raised, do not place the camera where sunlight can pass through the eyepiece lens. There is risk of damage to the camera and peripheral equipment, as well as a hazard of fire.
3. Do not place with the viewfinder pointed toward the sun. Sunlight can be focused by the eyepiece lens and damage the viewfinder interior.

Screen Status Menu Display in the Viewfinder :



LED display in the View Finder:

R TALLY
G TALLY
MODE

Menu & LED display adjustment detail:
Refer to Function Menu operation

Filter selection

filter setting

In order to obtaining correct white balance, the sufficient optical filter selection is required accordance with the scene lighting source. The correct optical filter according to the scene light source needs to be selected in order to obtain correct white balance.

Operation method

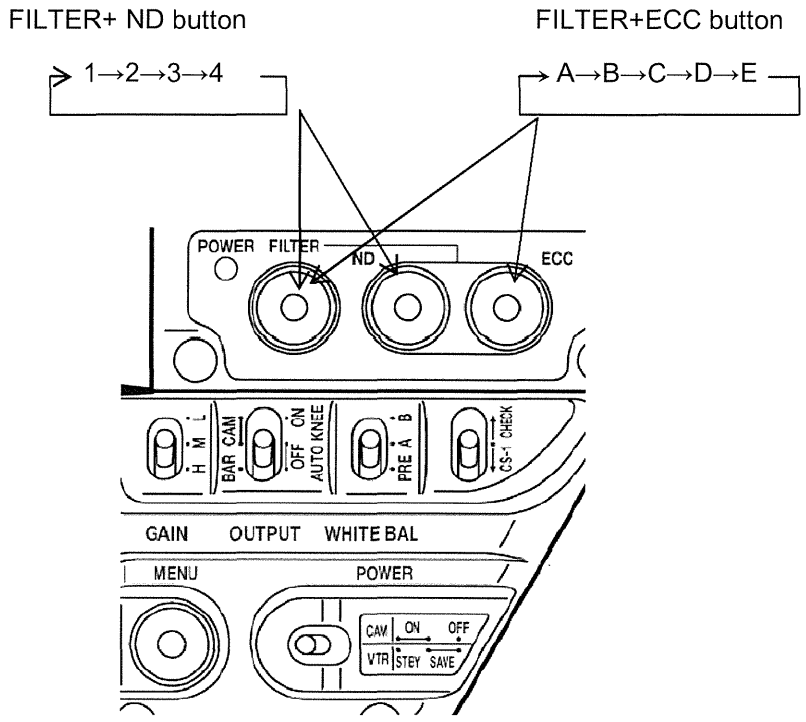
Set the FILTER SEL switch as follows.

ND Filter

No	ND Filter	
1	Clear	
2	Cross	
3	1/16ND	
4	1/64ND	

ECC Filter

No	ECC Filter	
A	3,200K	
B	4,300K	
C	5,600K	
D	6,300K	
E	8,000K	



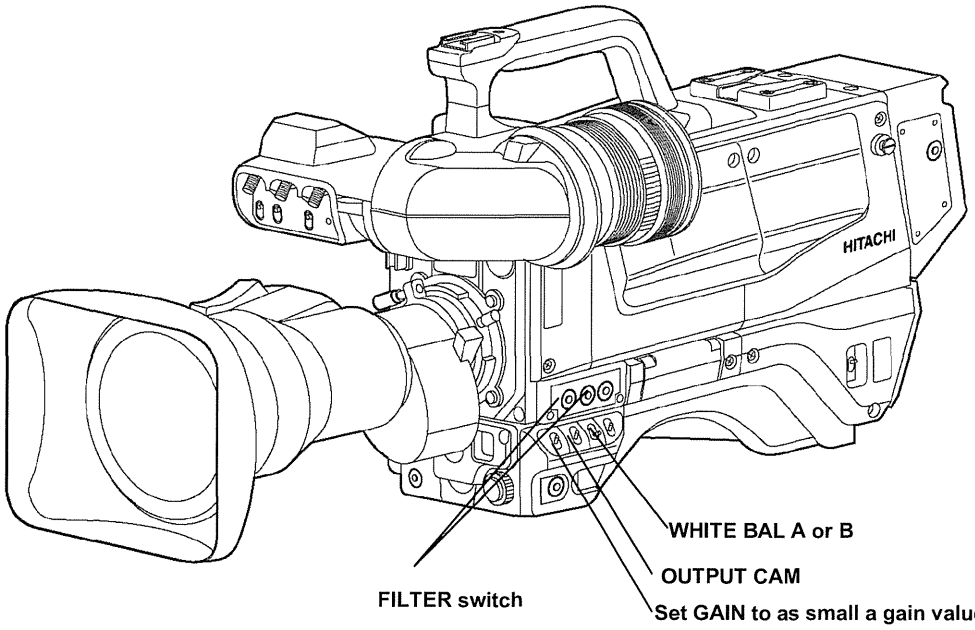
White and black balance adjustment

White balance adjustment

White balance will be adjusted to the best effort in the sequence of AWB (auto white balance), ABB (auto black balance), and again AWB.
Readjustment is normally not required even at power off/on.
Be sure to adjust the white balance after changes in the lighting conditions.
White and black balance adjustment progress can be observed from the viewfinder screen.

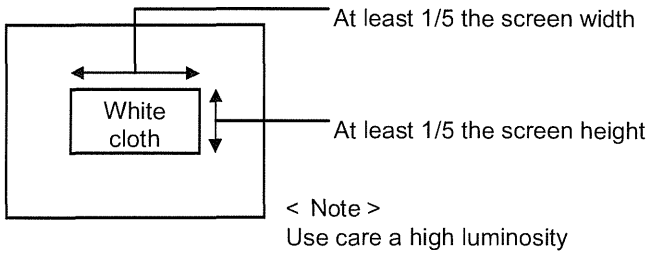
Adjustment

1. The WHITE BAL switch is setup to A or B. GAIN and the WHITE BAL switch setting status is indicated on the viewfinder screen (when display setting is ON with VF DISPLAY menu).



2. Set the FILTER SEL switch with lighting condition accordingly.
- See Optical filter selection in page 20. When the filter is changed by the selection switch, the new setting status will be indicated in the viewfinder for about 3 seconds.

3. Place a white pattern at a location subject to the same lighting conditions as the scene. Use zoom function of the lens so that the screen is white.
A white object (e.g., cloth, wall) placed near the scene of interest can be used provided the size is adequate (see figure).

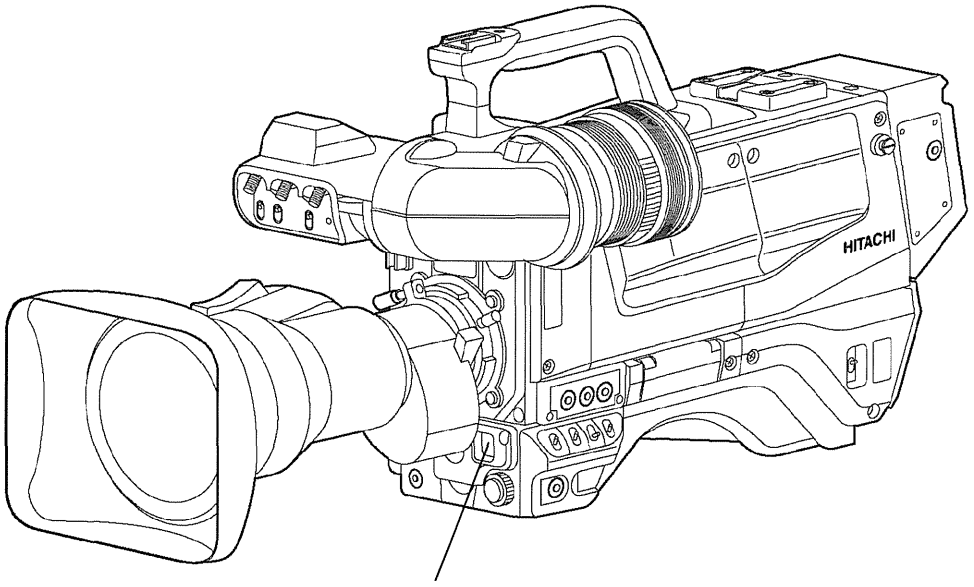


< Note >
Use care a high luminosity light source, such as a spotlight, does not enter the screen area.

White and black balance adjustment

4. Adjust the lens iris.

5. Set the AUTO W/B BAL switch to AWB for automatic white balance adjustment.



6. During adjustment, the following messages appear on the viewfinder screen.

7. Adjustment is completed in several seconds.

AUTO WHITE :	AUTO WHITE : OK
Adjustment In progress	Adjustment complete

White and black balance adjustment

Auto white balance error messages

When auto white balance adjustment fails, the following error messages will be displayed on the viewfinder screen for about 6 seconds.

Message	Cause	Correction
AUTO WHITE:NG CHANGE TO CAM TRY AGAIN	The OUTPUT/AUTO KNEE switch is set to BAR.	Set the OUTPUT/AUTO KNEE switch to CAM.
AUTO WHITE:NG CHANGE WHITE BAL TO MEN TRY AGAIN	The WHITE BAL switch is set to PRE.	Set the WHITE BAL switch to A or B.
AUTO WHITE:NG LOW LIGHT TRY AGAIN	Insufficient lighting for adjustment.	Increase the lighting or set the GAIN switch to M or H. In case the manual iris is using at the lens, adjust the iris stop of the lens. Then repeat white balance adjustment.
AUTO WHITE:NG LEVEL HIGH TRY AGAIN	Excessive lighting for adjustment.	Set the GAIN switch to a lower position. In case the manual iris is using at the lens, adjust the iris stop of the lens. Then repeat white balance adjustment.
AUTO WHITE:NG C. TEMP. HIGH CHANGE FILTER TRY AGAIN	Color temperature adjustment is too high.	Change ECC filter and readjust.
AUTO WHITE:NG C. TEMP. LOW CHANGE FILTER TRY AGAIN	Color temperature adjustment is too low.	Change ECC filter and readjust.
AUTO WHITE: TALLY ON EXECUTE ?	TALLY lamp lighted. Message asks for auto white confirmation after execute tally off.	While tally lighted off, again set the AUTO W/B BAL switch to AWB and begin adjustment.

When the above error messages appear, correct the settings and repeat white balance adjustment.

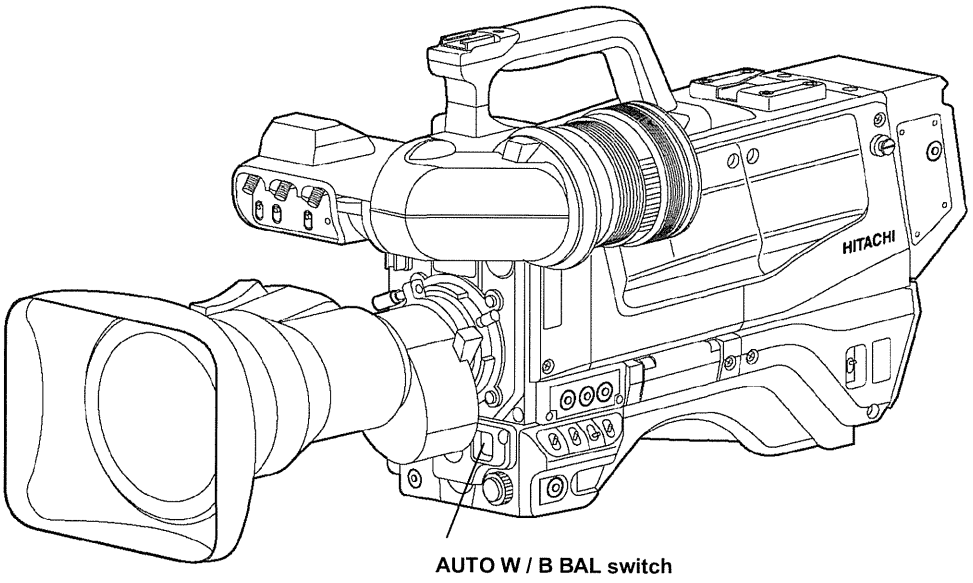
White and black balance adjustment

Black balance adjustment

Black balance requires adjustment in the following situations.

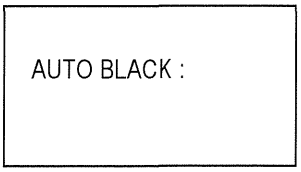
- •Equipment being used for the first time
- •Equipment idle for an extended period
- •Large change of ambient temperature
- •Gamma setting changed

1. Set the AUTO W/B BAL switch to ABB for automatic black balance adjustment.



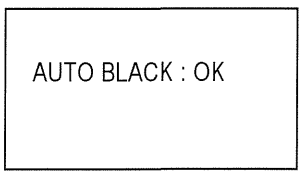
2. The viewfinder displays the following messages during adjustment.

- •The lens iris is automatically closed.



Adjustment In progress

3. Adjustment is completed in several seconds and automatically stored in memory.



Adjustment com pleted

White and black balance adjustment

Auto black balance error messages

When auto black balance adjustment fails, the following error messages appear on the viewfinder screen for about 6 seconds.

Message	Cause	Correction
AUTO BLACK:NG CHANGE TO CAM TRY AGAIN	The OUTPUT/AUTO KNEE switch is set to BAR.	Set the OUTPUT/AUTO KNEE switch to CAM.
AUTO BLACK:NG IRIS NOT CLOSED TRY AGAIN	The Iris is not closed.	See Note 1.
AUTO BLACK:NG TALLY ON EXECUTE ?	The TALLY lamp lighted. Message asks for auto black confirmation after execute tally off.	While lighted, tally lighted off ,again set the Auto W/B BAL switch to ABB and begin adjustment.
AUTO BLACK:NG ??? TRY AGAIN	Range is exceeded, cannot adjust.	See Note 2.

Note1

- Observe that the lens connector is engaged and the iris is closed.
- The iris closes automatically to block the light during black balance adjustment.
- During black balance adjustment, the gain circuit is switched automatically.
- Although flicker or noise may appear on the viewfinder screen, these are not malfunctions.

Note2

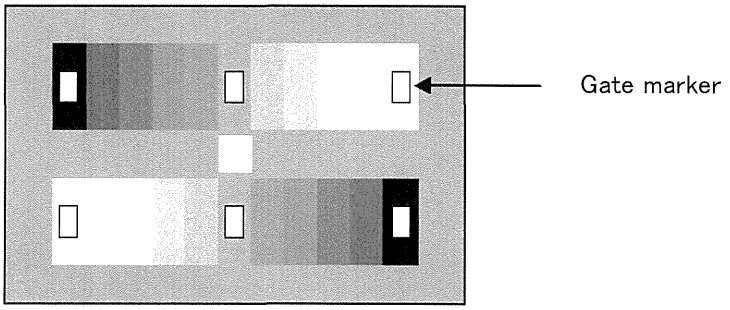
- The lens iris is automatically closed during black balance adjustment. If the iris control is manual, open the iris after adjustment.
- Check the lens connection. If ok, fault is in the lens or the camera. Consult service.

White and black balance adjustment

Gray scale auto set up

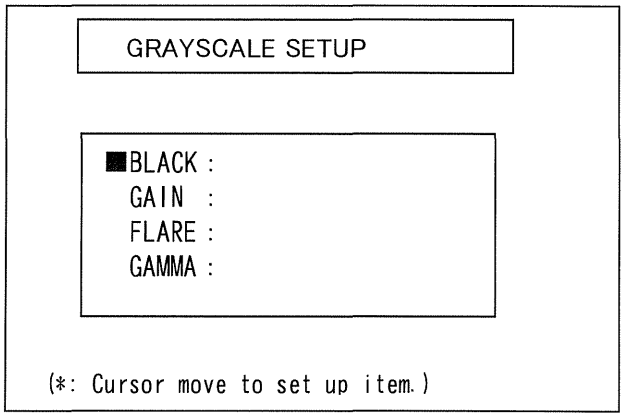
BLAK, GAIN, FLARE and GAMMA parameter can be adjusted automatically using with the gray scale chart.(Refer to function menu 4. MAINTENACE)

Gray scale chart with gate marker in the View Finder.



Gray scale auto set up can be accessed from Function menu or the Remote control unit and following message is displayed in the view finder during auto set up working

.



Following messages are displayed in the view finder as an auto set up result.

CHANGE TO CAM	(Error: Change Bar to CAM)
NOT GRAYSCALE	(Not in the gate marker or no gray chart)
SETUP OK!!!	(Finish set up)
BLACK: OK	(Finish set up)
BLACK: NG M.BLACK	(Master black setup error)
GAIN(GAMMA/FLARE) NG R	(R CH error)
GAIN(GAMMA/FLARE) NG G	(G CH error)
GAIN(GAMMA/FLARE) NG B	(B CH error)
GAIN(GAMMA/FLARE) NG R/G	(R&G CH error)
GAIN(GAMMA/FLARE) NG R/B	(R&B CH error)
GAIN(GAMMA/FLARE) NG G/B	(G&B CH error)
GAIN(GAMMA/FLARE) NG R/G/B	(R&G&B CH error)
BREAK OFF	

Electronic shutter setting

Shutter modes

The selectable electronic shutter modes and speeds are as follows.

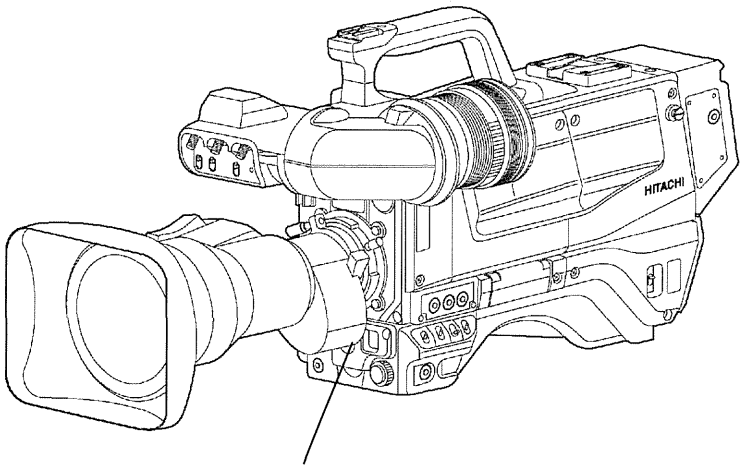
Mode	Shutter speeds	Applications
PRESET	1/100(59.94i), 1/60(50i), 1/250, 1/500,1/1000,1/2000 second	Clear images of quickly moving objects.
LOCK SCAN	1/59.94 to 1/1983 second (59.94i) 1/50.00 to 1/2008 second (50i)	When shooting the computer monitor, It's image scroll. Reduce horizontal bar scrolling in images of computer monitor.
CC FRM (Charge Controlled Frame)	1/59.94 second(59.94i) 1/50.00 second(50i)	Set to increase vertical resolution.
AES (Auto Electronic Shutter)	1/59.94 to 1/1000 second (59.94i) 1/50.00 to 1/1000 second (50i)	Set to obtain an always fixed video level when the light is greater than the close limit.

Note

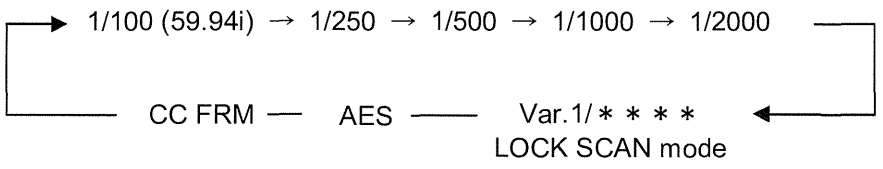
Camera sensitivity declines as shutter speed increases.
An auto iris lens stop opens at increased shutter speed, while the depth of focus is decreases.

Shutter mode and speed settings

1. Shift the Shutter switch from ON to SEL to change the shutter speed. The viewfinder screen indicates speed change and new shutter speed.
   Example: 1/100



2. The mode and speed change sequence is indicated below.



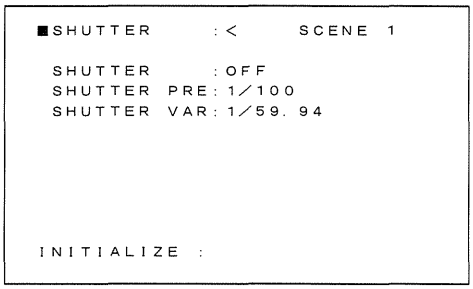
Electronic shutter setting

LOCK SCAN mode

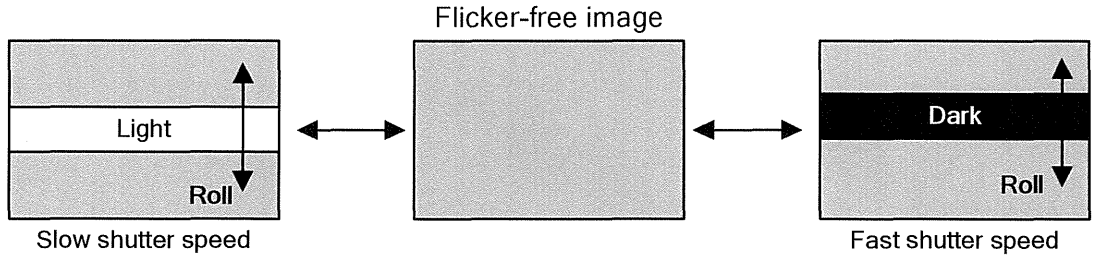
The lock scan mode avoids flicker in scenes showing a computer monitor screen.

1. Set the Shutter switch to SEL to produce the lock scan mode.
2. Push MENU BUTTON, top menu screen is displayed.

The cursor can be changed by rotating MENU SEL KNOB.
Go to Shutter menu, sub menu of maintenance menu.
Move the cursor to SHUTTER VAR.
Adjust the rotating MENU SEL KNOB buttons.



3. The image of a computer screen having a different scanning frequency includes a light or dark bar rolling up or down through the image.
   Adjust the rotating MENU SEL KNOB buttons to minimize the bar.



Note
Flicker reduction is ineffective at scanning frequency below 60 Hz.

Setup card

Setup card

A separately sold an SD memory card can be used for storing the setting menu data.

The data can then be used to quickly set the proper setup.

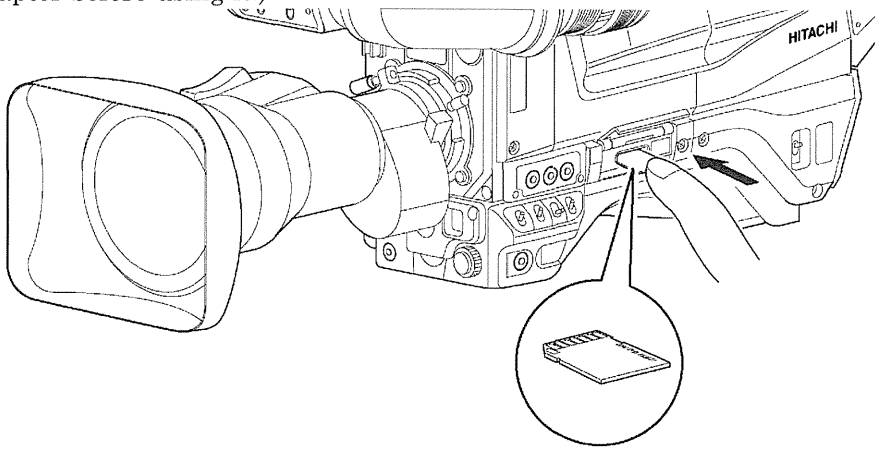
Handling

The SD memory card can be inserted and removed regardless of power on or off.

However, avoid removing while loading, saving or formatting is in progress, since operating error or SD memory card breakage can occur.

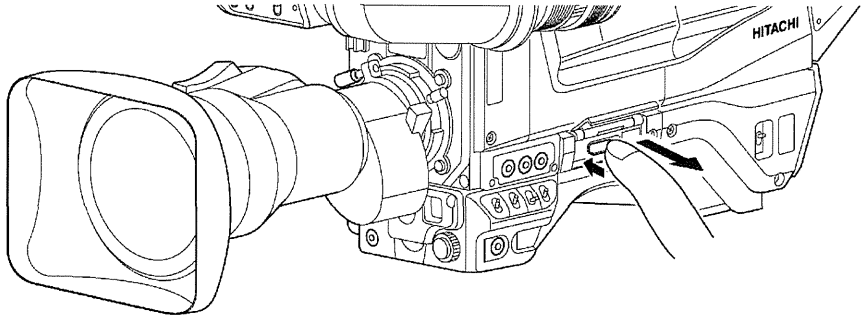
Inserting

Position the SD memory card as shown then insert the SD memory card into the insertion hole. If you intend to use the miniSD cards in the camera, always install the adapter specially designed for miniSD cards.(The unit will not work properly if only adapter is installed. Make sure that the card has been installed in the adapter before using it.)



Removal

Press the setup card for rejection.



Notes

-When inserting the setup card, do not mistake its orientation.
If the setup card is hard to insert, do not force it in but check the orientation.
-Any SD memory card with the following capacities (64MB to 2GB) memory cards can be used with the camera.
(64MB, 128MB, 256MB, 1GB, 2GB,)

⚠ CAUTION

Avoid the following when handling the setup card.

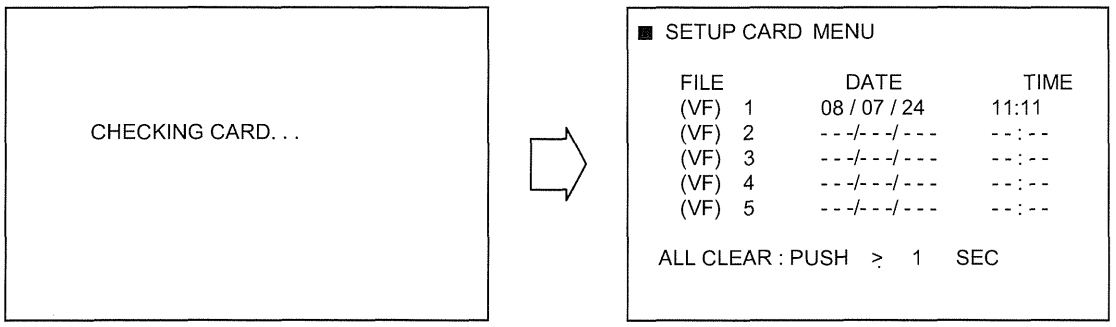
·High temperature and humidity ·Water drops ·Electric fields

Setup card

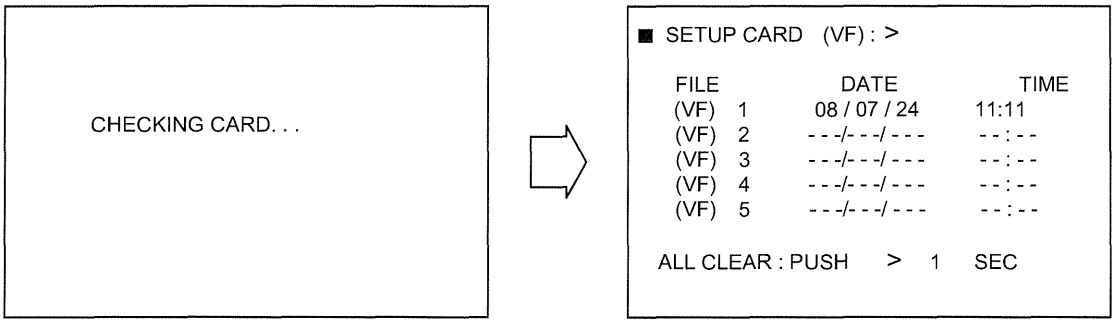
Setup card operation

The setting data is loaded and saved, and the setup card is formatted according to the SETUP CARD menu. If the insertion of the setup card is followed by indication of SETUP CARD menu, the setup card is checked.

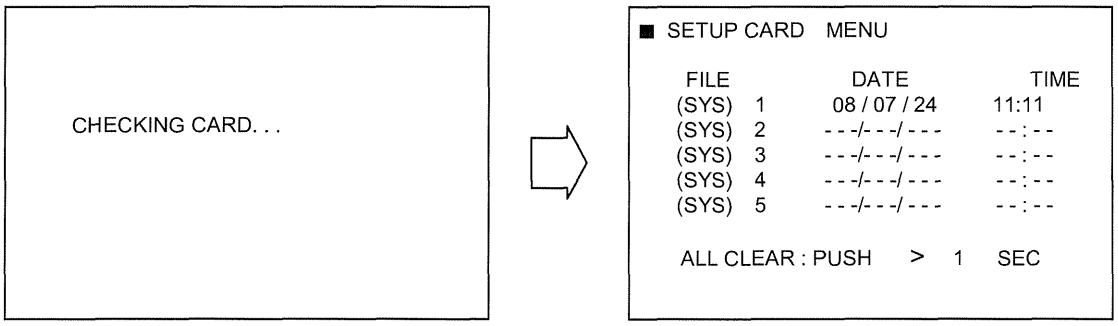
When the check results are normal with system operation, the SETUP CARD menu appears in the viewfinder.



When the check results are normal with control head function, the SETUP CARD menu appears in the viewfinder.

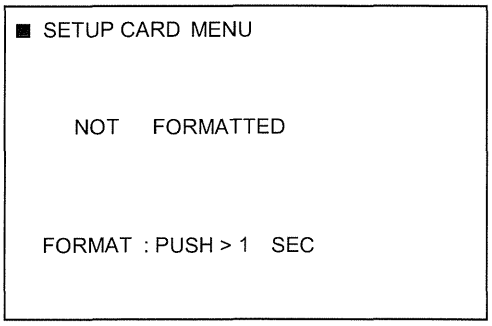


When the check results are normal with system operation, the SETUP CARD menu appears with remote control menu operation at the CCU side monitor.



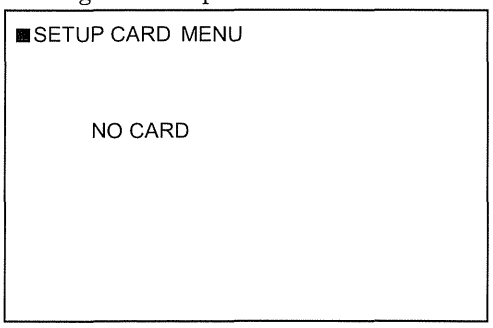
Setup card

If the setting data for this camera exists in the setup card, the date and time when the setting data was saved appear in the DATE and TIME fields. "—" appears where no corresponding file exists. If the checking revealed an error, the indication below appears, inhibiting all operations other than formatting.



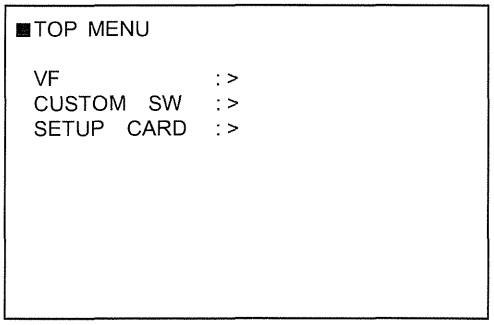
Notes
The checking time depends on a particular setup card inserted.

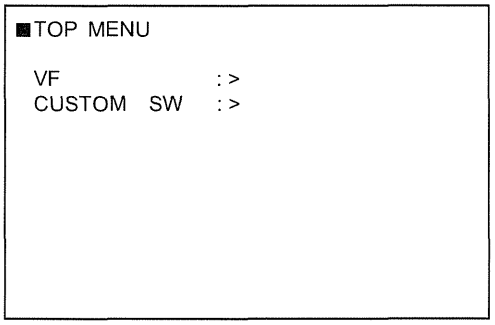
Removing the setup card while the SETUP CARD menu is being indicated displays the following.



*: Insert the setup card while this menu is being indicated, status pass to CHECKING CARD . . . display menu.

Notes
- If it is attempted to open the function menu at a status where no setup card is inserted, the SETUP CARD menu does not appear.

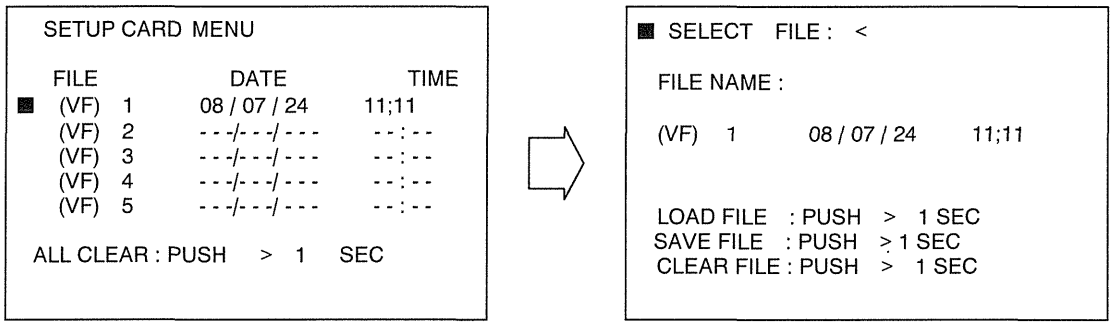




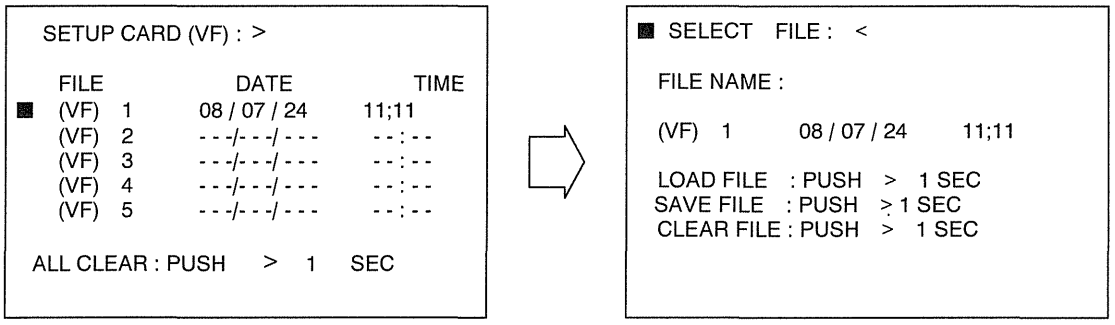
Setup card

Setting data save

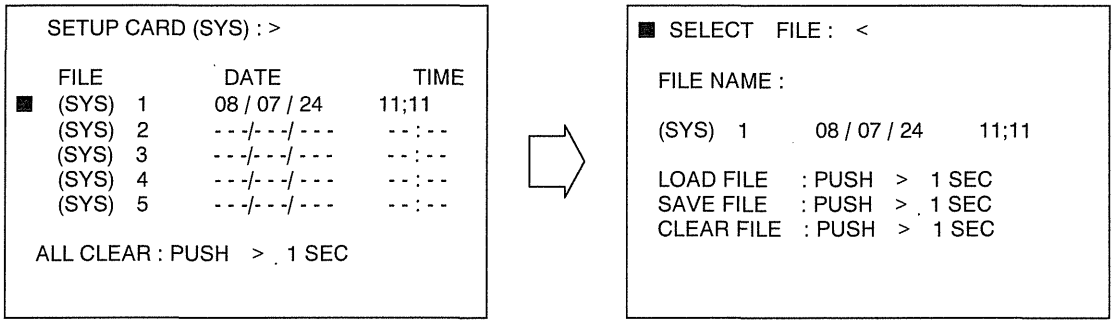
1. After Display the SETUP CARD menu, select a file to load, save or clear in the viewfinder.



After Display the SETUP CARD menu with control head function, select a file to load, save or clear in the viewfinder.

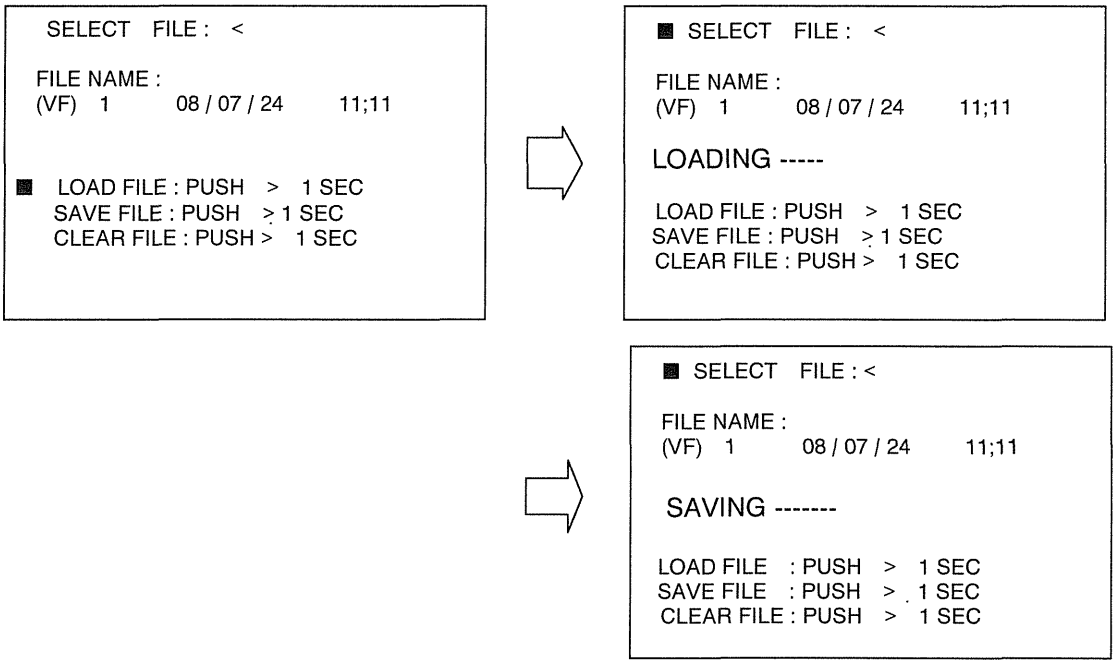


After Display the SETUP CARD menu with system operation at the CCU side monitor, select a file to load, save or clear from the remote control unit.

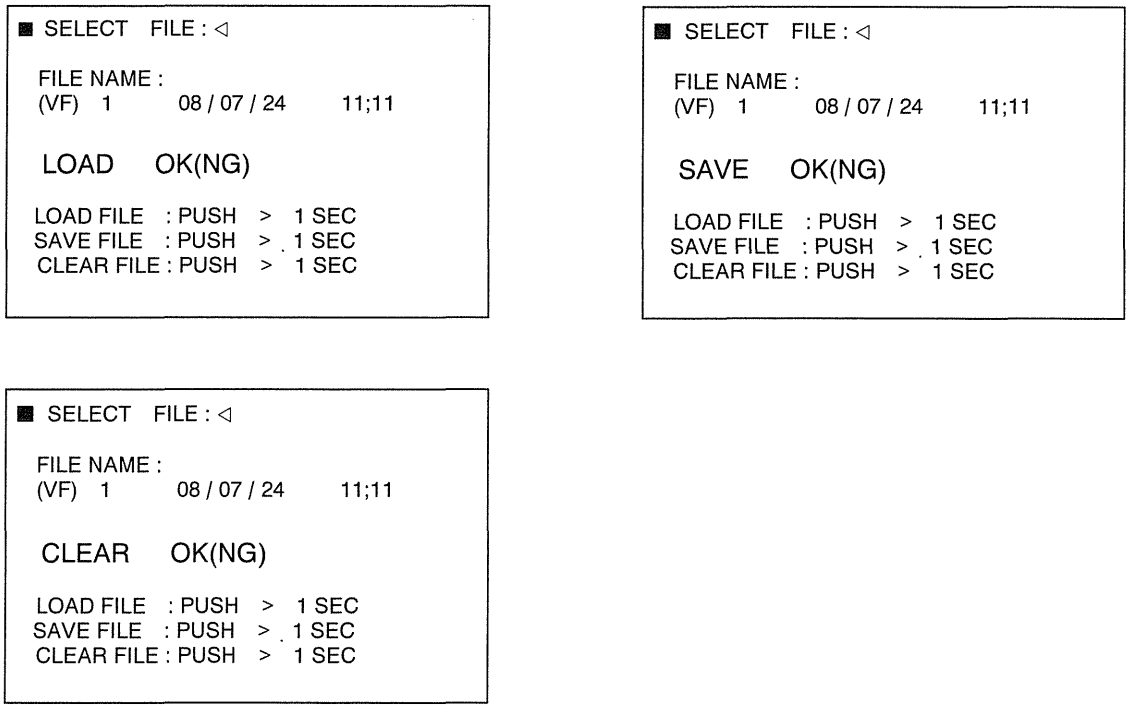


Setup card

2. Press > button 1 SEC and load, save or clear data from selected file.
Display LOADING----- or SAVE ----- during activating.



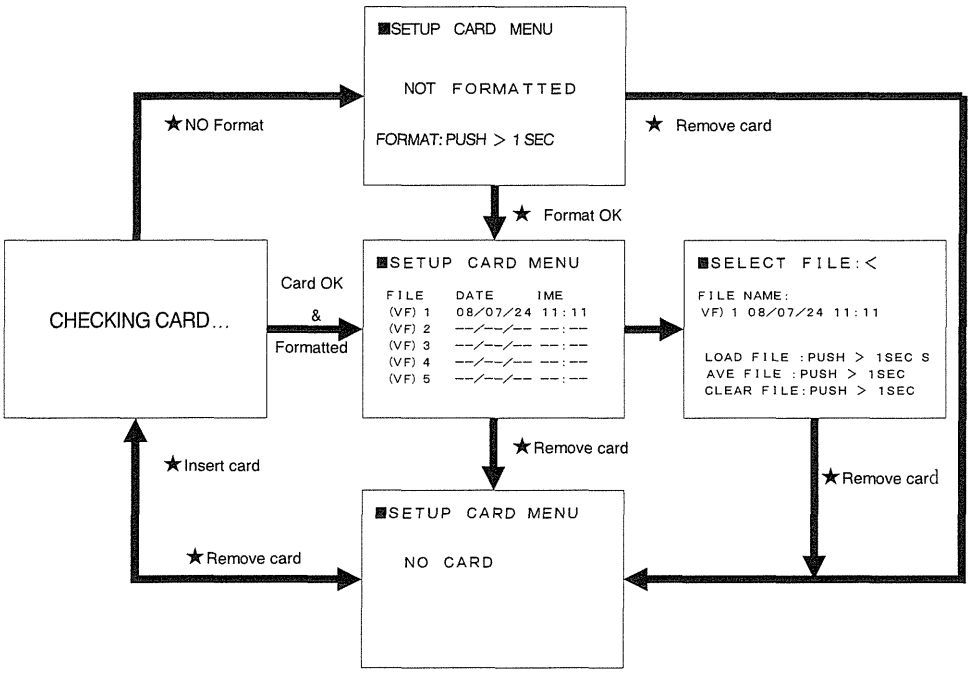
3. The load, save or clear results appear.



Setup card

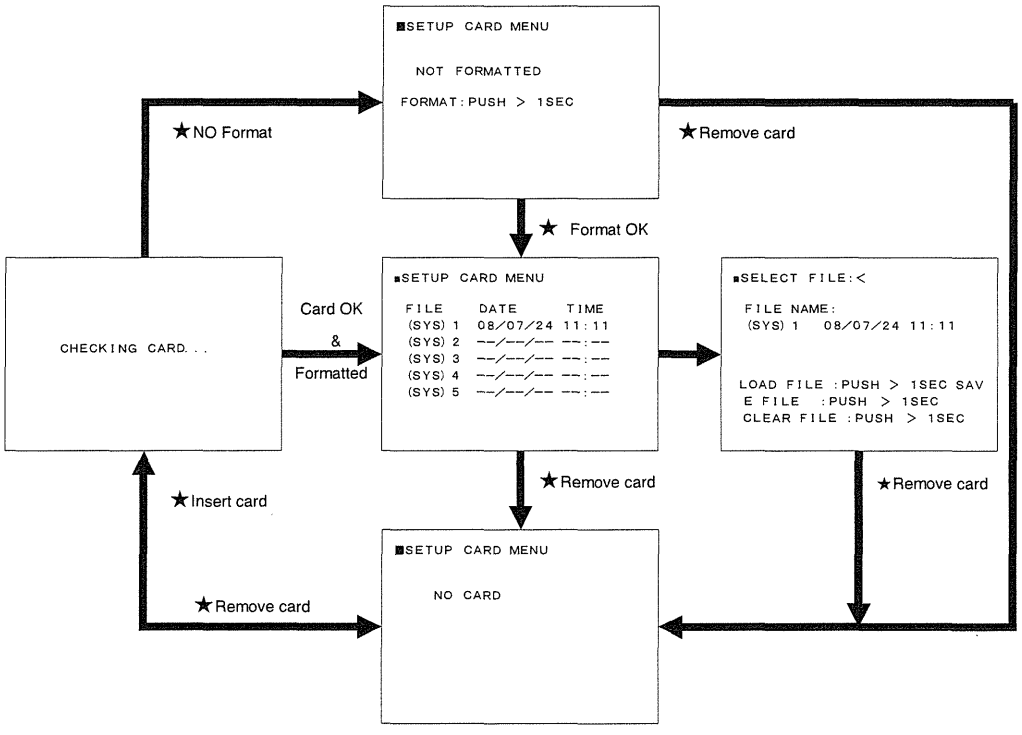
Status pass & display for each camera operation

1. Camera system menu operation (display in the viewfinder)



★ Remove card when SETUP CARD MENU display

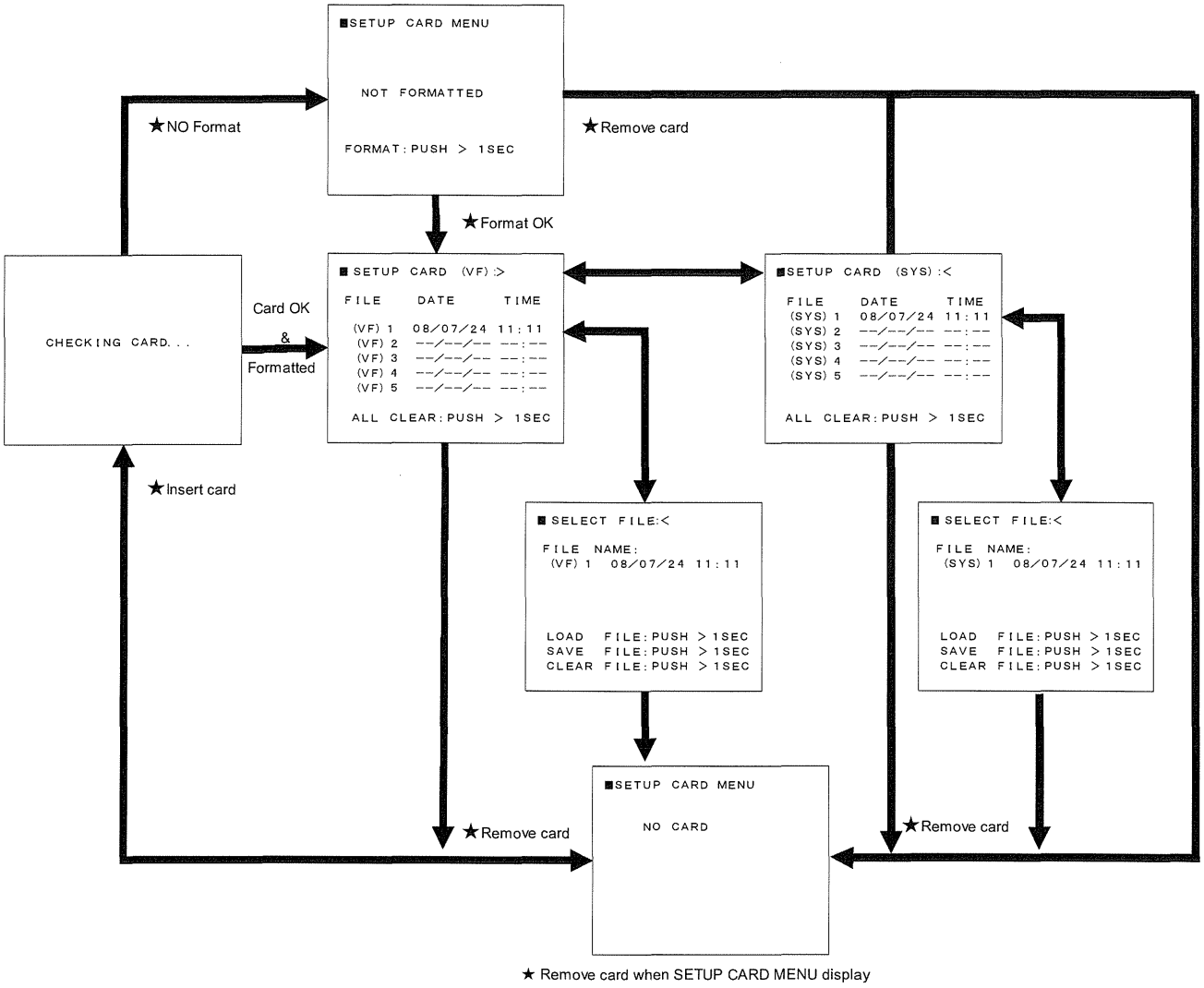
2. Camera system menu operation from the RU at CCU side monitor (display in the Monitor)



★ Remove card when SETUP CARD MENU display

Setup card

3. Control head menu operation in the viewfinder.



★ Remove card when SETUP CARD MENU display

In event of error

If setting data save or load, or setup card format results are erroneous, the setup card may be faulty. Change the setup card.

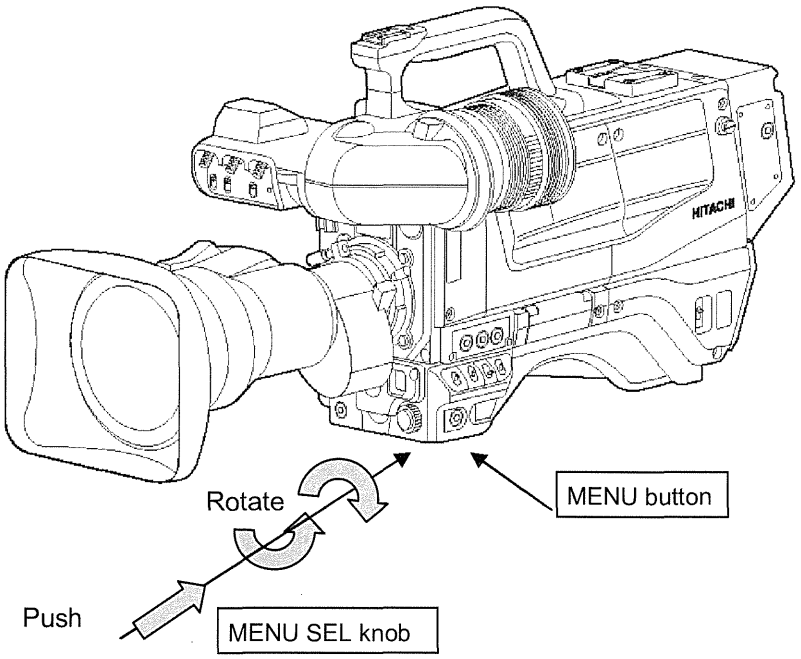
If the error recurs, consult a Hitachi technical service representative.

Function menu

There are three function menu setting methods in the camera system chain which are,
1) Set Up Control Unit SU- 1000 function switches,
2) Remote Control Unit RU-3400JY function switches
3) The CAMERA HEAD switches.

In this section, only describe for the camera head switches function menu. How ever the camera head function & menu display settings are required from the SU-1000 or the RU-3400JY function set. This will be noted in each section.
Also, different functions & character are displayed where to see the display monitor location.

Operation and menu screen



MENU BUTTON

The display menu screen show up by pressing this button in the view finder. Which menu is described camera functions and camera software with multiple pages structure. First page of multiple pages structure is named Top menu. This Top menu screen is appeared (ON) and disappeared (OFF) by pressing this MENU BUTTON.

Top Menu: This is displayed in the viewfinder or the PIX monitor.

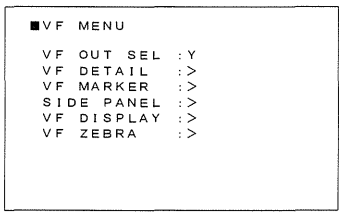
Top menu has three kinds screen display status depend on camera operation and monitoring location which detail are described as following pages. Top menu has major camera function items and the cursor in the screen. This cursor can be moved by the Rotate knob. See above.

The cursor is located on the left side of the first major item in Top menu screen right after open it.

Move down the cursor to the major camera function item with the Rotate knob and press the MENU SEL KNOB, then menu screen change to Main menu.

Function menu

Main Menu: (Typical main menu)



There are two kind cursor markers (1) ■ and (2)◀▶
Marker (1) is moved up & down by the Rotate knob and Marker (2)
Is changed parameter Y→R → G → B by the Rotate knob.
Marker : > indicate sub menu hidden in behind.

Main menu is categorized and grouping items. Individual item has marker :> on right side. This has additional menu screen behind. This is named Sub Menu.

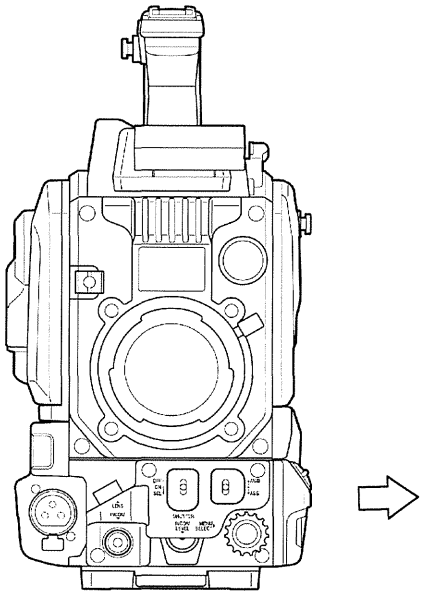
Sub Menu

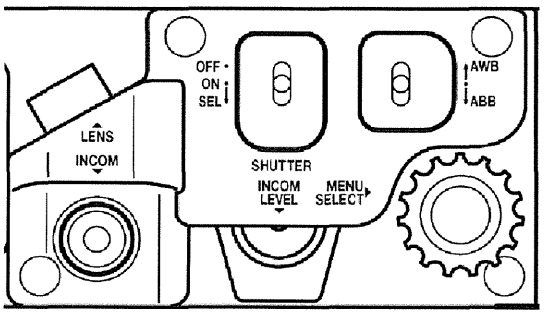
Main menu to Sub menu:
Move the cursor with the Rotate knob then press the [MENU SEL] KNOB.
First line of sub menu has the cursor and < or > marker.
Marker > indicate additional sub menu. Press again the [MENU SEL] KNOB and next sub menu screen show up.
Marker < indicate no additional sub menu. This can go back to main menu with pressing the [MENU SEL] KNOB.

Some control items in sub menu has :> marker on right side. This marker indicate daughter menu screen behind. Move the cursor with the Rotate knob to these items and press the [MENU SEL] KNOB. Open daughter menu screen,

Main menu to Top menu:
Move the (1) ■ cursor back to first line with the Rotate knob and press the [MENU SEL] KNOB.

SWITCH, KNOB, BUTTON and VR location for operation

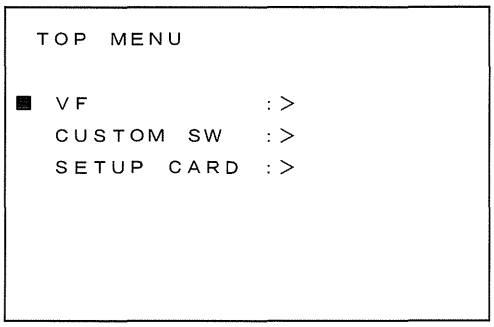




[MENU SEL] KNOB
PUSH & Rotate

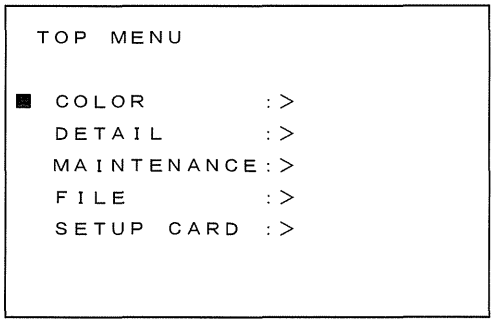
Function menu

The camera head is connected with the CCU and the RU/SU as an operational camera system, the camera head View finder display TOP MENU as follows. This is mainly used for camera man's operation



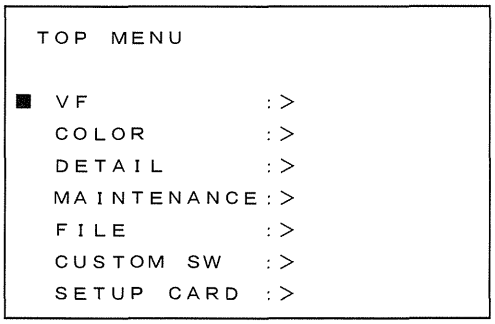
VF MENU: Open this menu by pushing the MENU SW in side of the camera. Close for pushing this again.

The camera head is connected with the CCU and the RU/SU as an operational camera system, The CCU output display TOP MENU on the PIX out monitor as follows. This is for Video operator at the CCU.



PIX MENU: open this menu by pushing the MENU SW in the RCU.

From the SU or the RU control unit, all function controls can give to the camera head and set the camera function at head site which we call "CONTROL HEAD" and display in the Viewfinder as follows.



VF MENU:

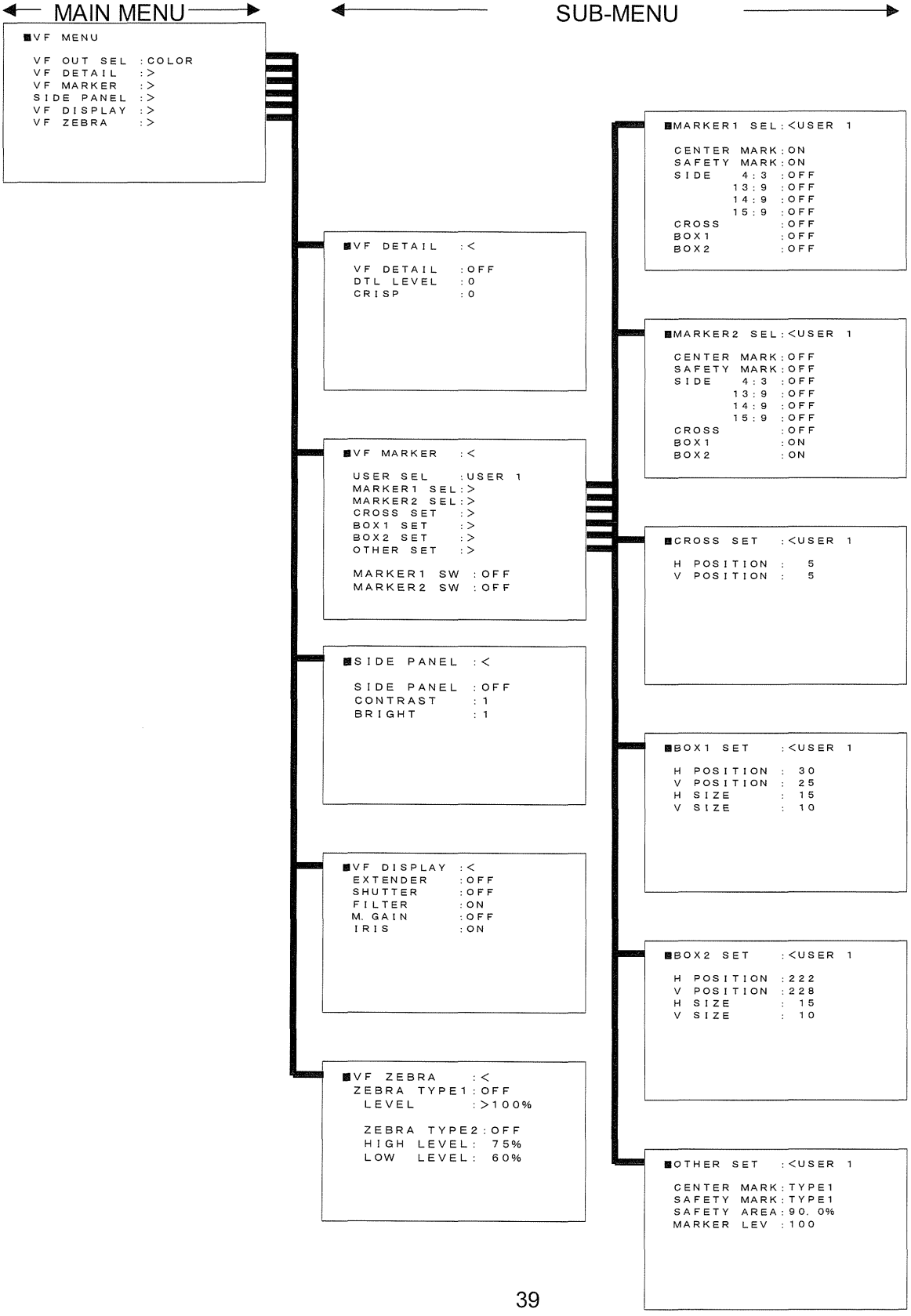
All above TOP MENU has following Main menu.

Item	Main Menu	Description
1	VF	Change screen to VF main menu items display.
2	CUSTOM SW	Change screen to CUSTOM SW main menu items display.
3	COLOR	Change screen to COLOR main menu items display.
4	DETAIL	Change screen to DETAIL main menu items display.
5	MAINTENANCE	Change screen to MAINTENANCE main menu items display.
6	FILE	Change screen to FILE main menu items display.

Function menu

CAM MODE (Camera man can operate this function at camera head .)

1. VF menu structure which are displayed in the viewfinder.)



Function menu

2. CUSTOM menu structure which are displayed in the viewfinder.

```
■CUSTOM SW

  CS-1 SW      :ZEBRA
  CA-CS SW     :- - - -
  LENS VTR SW:TALK
```

3. COLOR menu structure which are displayed in the Pix monitor or are displayed in the viewfinder with at control head mode.

MAIN MENU →

```
■COLOR MENU

  PAINT GAIN :>
  PAINT BLACK:>
  GAMMA      :>
  KNEE/CLIP  :>>
  MASKING    :>>>
```

SUB-MENU →

```
■PAINT GAIN :<    SCENE 1

  R GAIN       :    0
  B GAIN       :    0

  G /C. TEMP   :    0
  G /C. TEMP   :C. TEMP


  PAINT        :OFF
```

```
■PAINT BLACK:<    SCENE 1

  R BLACK      :    0
  G BLACK      :    0
  B BLACK      :    0
  R FLARE      :    0
  G FLARE      :    0
  B FLARE      :    0
  BLACK/FLARE:BLACK
  PAINT        :OFF
  M. BLACK     :    0
```

```
■PAINT GAMMA:<    SCENE 1

  TOTAL GAMMA:    0
  R GAMMA     :    0
  B GAMMA     :    0
  PAINT GAMMA:OFF

  GAMMA TABLE:4. 0
  BLK STR LEV: 16
  BLK STRETCH:OFF

  INITIALIZE :
```

```
■KNEE/CLIP 1:>   SCENE 1

  TOTAL KNEE   :    0
  R KNEE       :    0
  B KNEE       :    0
  TOTAL SLOPE:    6
  R SLOPE      :    0
  B SLOPE      :    0
  KNEE         : ON
  AUTO KNEE    :OFF

  INITIALIZE :
```

```
■KNEE/CLIP 2:<    SCENE1

  KNEE SAT     :   24
  KNEE SAT     :OFF

  WHITE CLIP   :    0
  WHITE CLIP   : ON



  INITIALIZE :
```

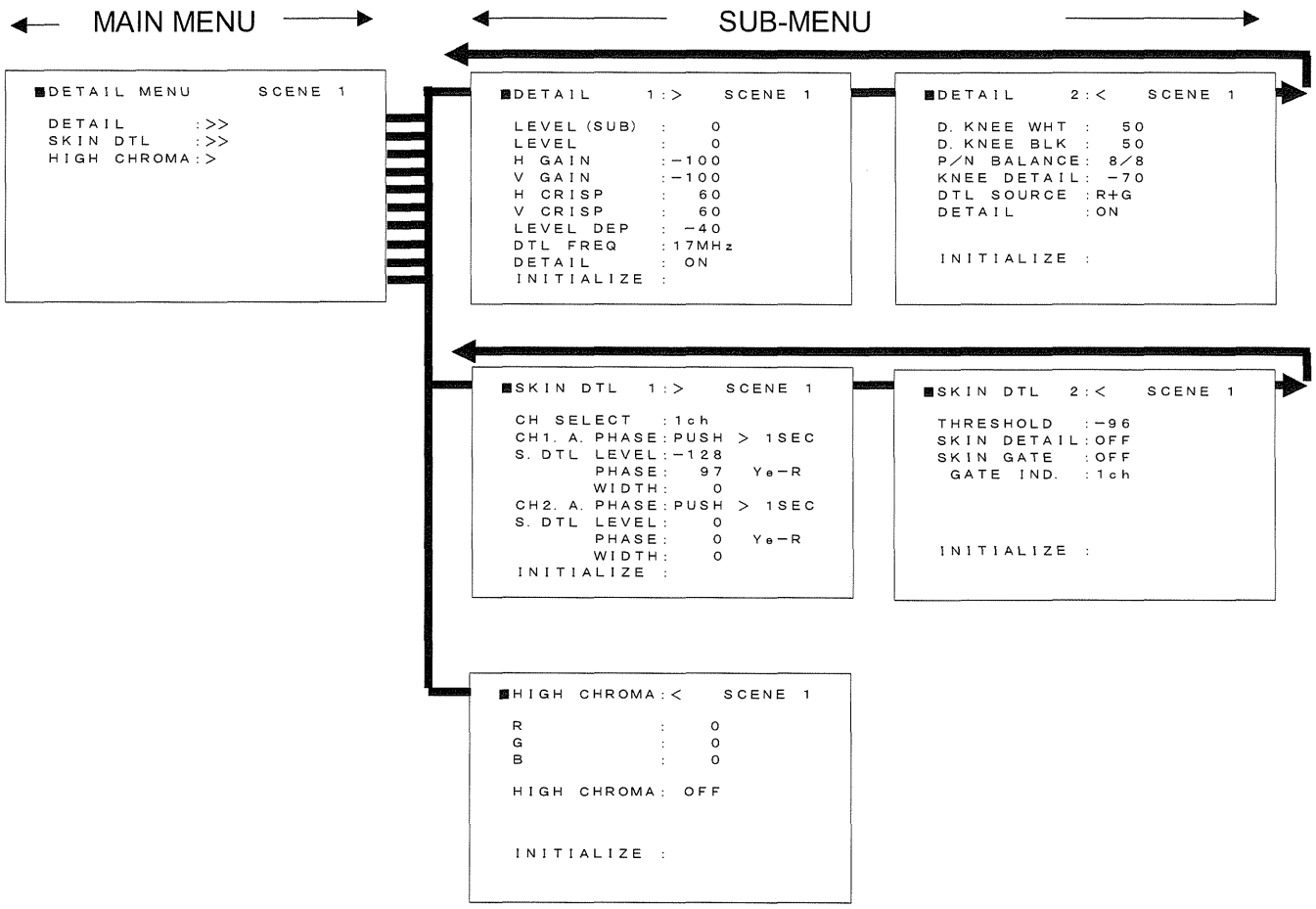
```
■MASKING    1:>    SCENE1

       HUE  SAT      HUE  SAT
  R   :   0    0  C   :   0    0
  Y-R:    0    0  B-C:    0    0
  Y   :   0    0  B   :   0    0
  G-Y:    0    0  M-B:    0    0
  G   :   0    0  M   :   0    0
  C-G:    0    0  R-M:    0    0

  MASKING      :OFF
  INITIALIZE :
```

```
■MASKING    2:>    SCENE 1

  -LINEAR-
  R-G:  38 G-R:   1 B-R:   0
  R-B:   6 G-B:   5 B-G:  11

  CHROMA SAT :   0
  CHROMA SAT :OFF

  MASKING      :OFF

  INITIALIZE :
```

```
■MASKING    3:<    SCENE 1

  -SKIN MASKING-
  S. MASK. SAT :    0
  S. MASK. HUE :    0

  SKIN MASK    :OFF



  INITIALIZE :
```

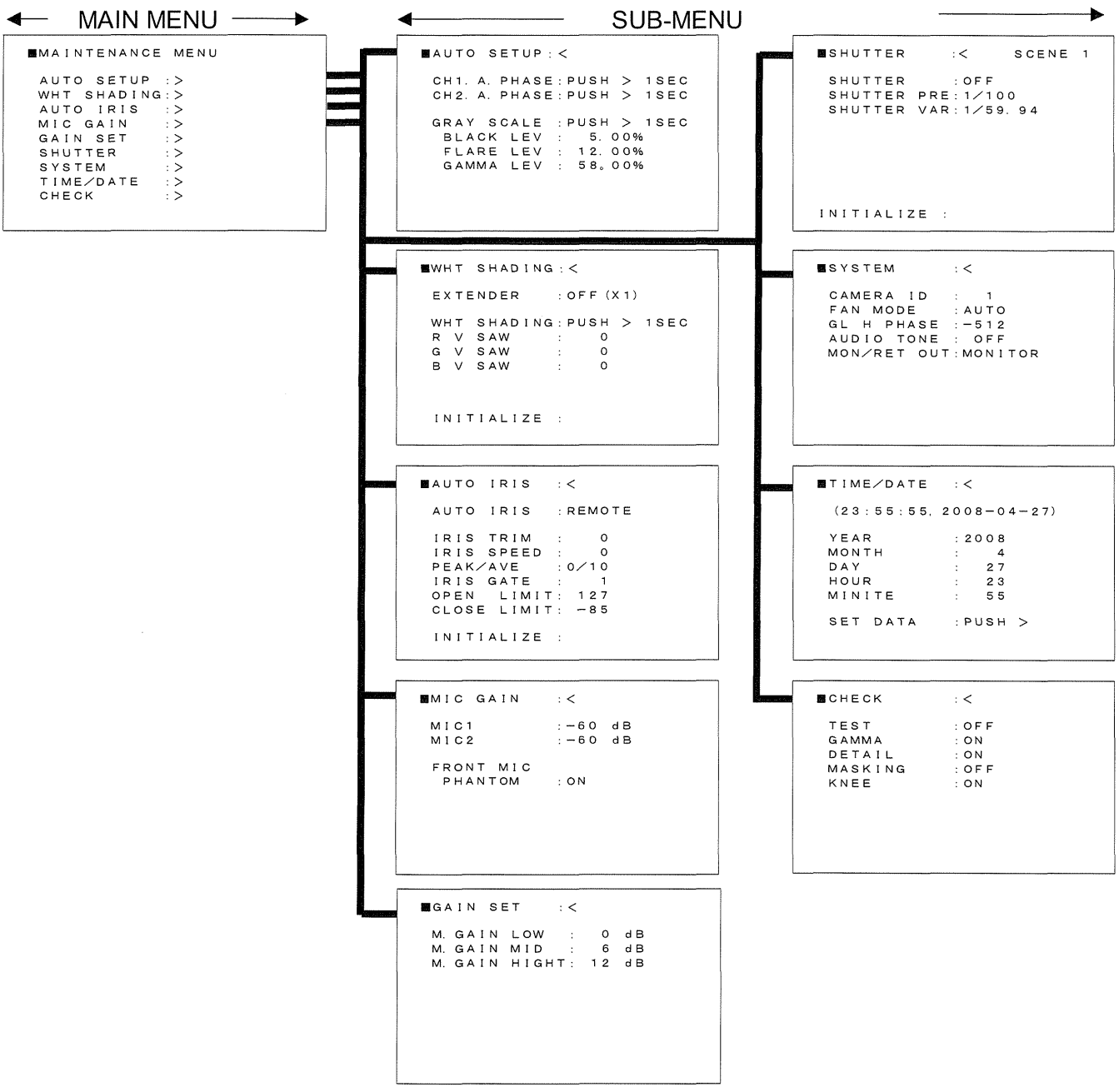
Function menu

4. DETAIL menu structure which are displayed in the Pix monitor or are displayed in the viewfinder with at control head mode.

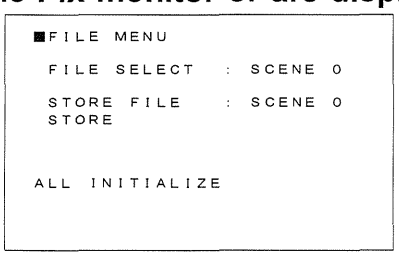


Function menu

5. MAINTENANCE menu structure which are displayed in the Pix monitor or are displayed in the viewfinder with at control head mode.



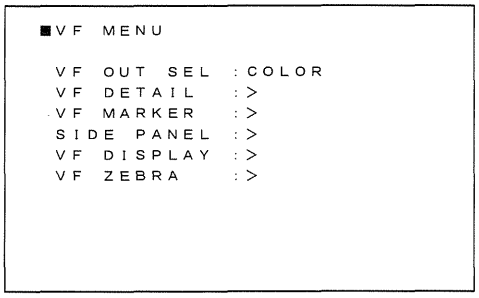
6. FILE menu is displayed in the Pix monitor or are displayed in the viewfinder with at control head mode.



Function menu

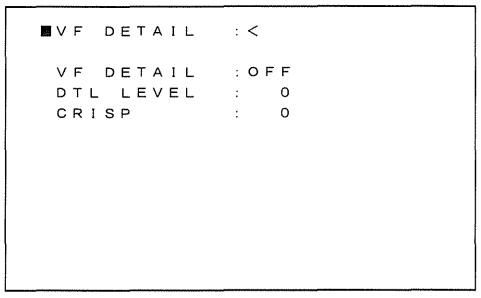
5. EACH MENU ITEM & DESCRIPTION

5. 1 VF MENU (MAIN menu) which are displayed in the viewfinder & description.



Item	Setting	Factory setting	Description
VF OUT SEL	COLOR Y,R,G,B	COLOR	
VF DETAIL			Change screen to VF DETAIL menu.
VF MARKER			Change screen to VF MARKER menu.
SIDE PANEL			Change screen to SIDE PANEL menu.
VF DISPLAY	-	-	Change screen to VF DISPLAY menu.
VF ZEBRA			Change screen to VF ZEBRA menu.

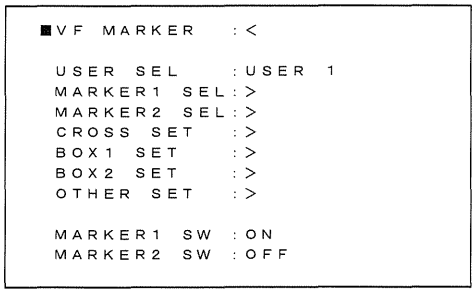
5.1.1 VF DETAIL menu (VF SUB-MENU) & description.



Item	Setting	Factory setting	Description
VF DETAIL	ON,OFF	OFF	VF Detail ON and OFF
DTL LEVEL	-128 to +127	0	Adjust VF detail level
CRISP	-128 to +127	0	Adjust VF detail Crisp.

- Note -
When VF-L8HD or VF-L9HD is used, VF DTL LEVEL is controlled in Peaking volume of viewfinder.

5.1.2 VF MARKER menu (VF SUB- MENU) & description.



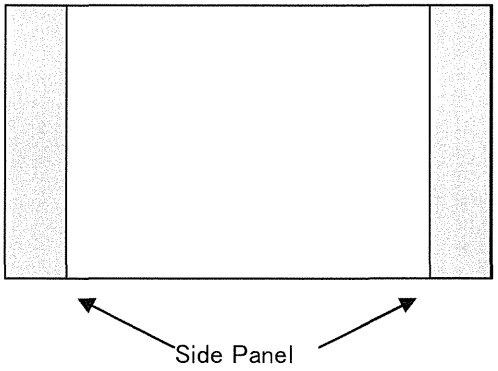
Item	Setting	Factory setting	Description
USER SEL	USER1/ 2/3/4	USER1	MARKER1/2 SEL, CROSS SET BOX1/2 SET, OTHER SET These can do the memory.
MARKER1 SEL			Change screen to MARKER1 menu.
MARKER2 SEL			Change screen to MARKER2 menu.
CROSS SET			Change screen to CROSS SET menu.
BOX1 SET			Change screen to BOX1 SET menu.
BOX2 SET			Change screen to BOX2 SET menu.
OTHER SET			Change screen to OTHER SET menu.
MARKER1 SW	ON, OFF	ON	It is effective only to install VF-HD500.
MARKER2 SW	ON, OFF	OFF	It is effective only to install VF-HD500.

Function menu

5.1.3 SIDE PANEL menu (VF SUB- MENU) & description.

```
■SIDE PANEL   :<

  SIDE PANEL  :OFF
  CONTRAST    :1
  BRIGHT      :1
```

Item	Setting	Factory setting	Description
SIDE PANEL	OFF, 4:3, 13:9, 14:9, 15:9	OFF	Only when DISP SIZE is 16:9, it is effective.
CONTRAST	1 to 5	1	Set side panel contrast
BRIGHT	1 to 5	1	Set side panel brightness



5.1.4 VF DISPLAY menu (VF SUB-MENU) & description.

```
■VF DISPLAY   :<

  EXTENDER    :OFF
  SHUTTER     :OFF
  FILTER      :ON
  M. GAIN     :OFF
  IRIS        :ON
```

Item	Setting	Factory setting	Description
EXTENDER	ON,OFF	OFF	Display the Extender indicator in VF, ON and OFF
SHUTTER	ON,OFF	OFF	Display the Shutter indicator in VF, ON and OFF
FILER	ON,OFF	ON	Display the Filter indicator in VF, ON and OFF
M.GAIN	ON,OFF	OFF	Display the M. Gain indicator in VF, ON and OFF
IRIS	ON,OFF	ON	Display the Iris indicator in VF, ON and OFF

5.1.5 VF ZEBRA menu (VF SUB-MENU) & description.

```
■VF ZEBRA     :<

  ZEBRA TYPE1 :OFF
    LEVEL     :>100%

  ZEBRA TYPE2 :OFF
    HIGH LEVEL: 75%
    LOW  LEVEL: 60%
```

Item		Setting	Factory setting	Description
ZEBRA TYPE1		ON,OFF	OFF	Zebra marker type1 for VF, ON and OFF
LEVEL		75% to 105%	>100%	Adjust limit value of VF zebra type 1
ZEBRA TYPE2		ON,OFF	OFF	Zebra marker type 2 for VF, ON and OFF
	HIGH LEVEL	55% to 100%	75%	Adjust maximum value of VF zebra type 2
	LOW LEVEL	50% to 99%	60%	Adjust limit value of VF zebra type 2

Function menu

5.1.2.1 MARKER1 SEL/ MARKER2 SEL menu (VF SUB-MENU) & description.

```
■MARKER1 SEL:<USER 1

  CENTER MARK:ON
  SAFETY MARK:ON
  SIDE    4:3 :OFF
         13:9 :OFF
         14:9 :OFF
         15:9 :OFF
  CROSS       :OFF
  BOX1        :OFF
  BOX2        :OFF
```

```
■MARKER2 SEL:<USER 1

  CENTER MARK:OFF
  SAFETY MARK:OFF
  SIDE    4:3 :OFF
         13:9 :OFF
         14:9 :OFF
         15:9 :OFF
  CROSS       :OFF
  BOX1        :ON
  BOX2        :ON
```

Item		Setting	Factory setting	Description
CENTER MARK		ON,OFF	ON	Center marker ON and OFF.
SAFETY MARK		ON,OFF	ON	Safety Maker ON and OFF. *1
SIDE	4:3	ON,OFF	OFF	Side 4:3 marker ON and OFF
	13:9	ON,OFF	OFF	Side 13:9 Marker ON and OFF
	14:9	ON,OFF	OFF	Side 14:9 marker ON and OFF
	15:9	ON,OFF	OFF	Side 15:9 marker ON and OFF
CROSS		ON,OFF	OFF	Cross marker ON and OFF.
BOX1		ON,OFF	ON	Box1 marker ON and OFF.
BOX2		ON,OFF	ON	Box2 marker ON and OFF.

*1: This safety marker is synchronized with aspect ratio (4:3, 13:9, 14:9, 15:9, OFF(16:9)) of the Side panel.

5.1.2.2 CROSS SET menu (VF SUB-MENU) & description.

```
■CROSS SET   :<USER 1

  H POSITION :   5
  V POSITION :   5
```

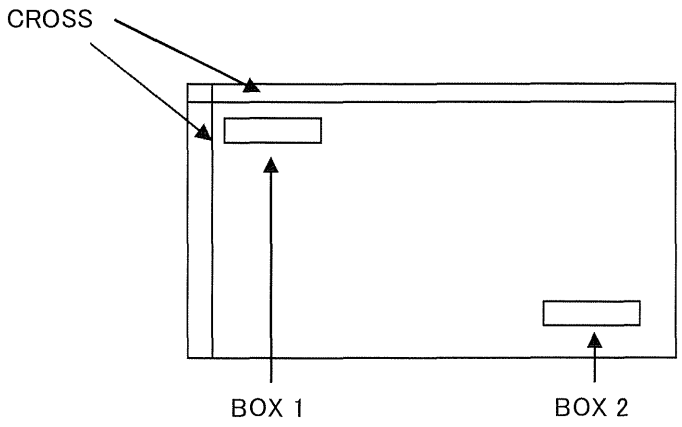
Item	Setting	Factory setting	Description
H POSITION	0 to 255	5	Adjust Vertical line of Cross Marker horizontally.
V POSITION	0 to 255	5	Adjust horizontal line of Cross Marker vertically.

5.1.2.3 BOX1 SET/BOX2 SET menu (VF SUB-MENU) & description.

```
■BOX1 SET    :<USER 1

  H POSITION :  30
  V POSITION :  25
  H SIZE     :  15
  V SIZE     :  10
```

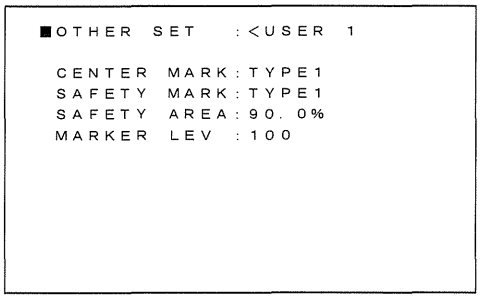
```
■BOX2 SET    :<USER 1

  H POSITION : 222
  V POSITION : 228
  H SIZE     :  15
  V SIZE     :  10
```

Item	Setting	Factory setting	Description
H POSITION	0 to 255	30	Adjust horizontal position.
V POSITION	0 to 255	25	Adjust vertical position.
H SIZE	0 to 255	15	Adjust H. size of the box.
V SIZE	0 to 255	10	Adjust V size of the box.



Function menu

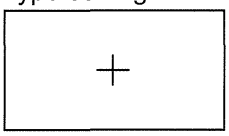
5.1.2.4 OTHER SET menu (VF SUB-MENU) & description.

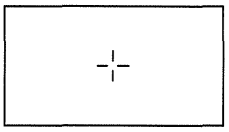


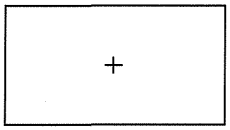
Item	Setting	Factory setting	Description
CENTER MARK	TYPE1/2/3/4	TYPE1 *1	*3 type setting of center marker
SAFTY MARK	TYPE1/2/3	TYPE1 *2	*4 Type setting of safety marker
SAFTY AREA	80.0%, 90.0%, 92.5%, 95.0%	90.0%	Setting of safety area
MARKER LEV	0 to 255	100	Adjustment of marker level

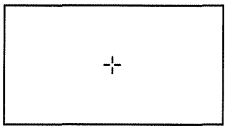
*1: USER 1:TYPE 1, USER 2:TYPE 2, USER 3:TYPE 3, USER 4:TYPE 4
*2: USER 1:TYPE 1, USER 2:TYPE 2, USER 3:TYPE 3, USER 4:TYPE 1

*3: Type setting of center marker

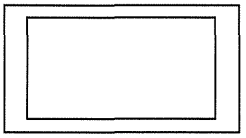

TYPE 1

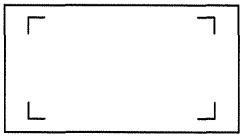

TYPE 2

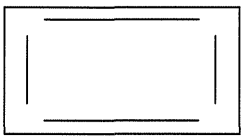

TYPE 3


TYPE 4

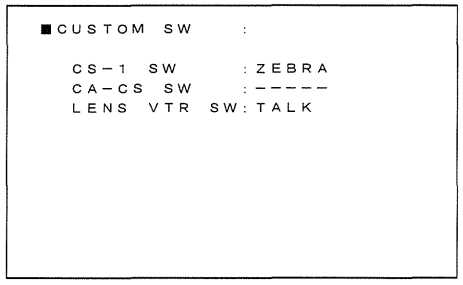
*4: Type setting of safety marker


TYPE 1


TYPE 2


TYPE 3

5.2. CUSTOM SW MENU (MAIN menu) which are displayed in the viewfinder & description.

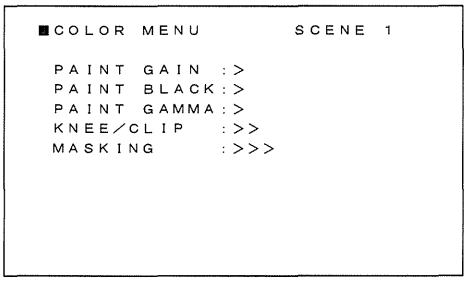


Item	Setting	Factory setting	Description
CS-1 SW	ZEBRA, MARKER, VF-DTL, QUICK FOCUS, FAW	ZEBRA	Set CS-1 switch
CA-CS SW	------, VF-DTL, MARKER1, MARKER2	------	Set CS switch in the CA.
LENS VTR SW	RET-2, TALK	TALK	Set VTR switch in the Lens.

Note. ·Quick focus
Quick Focus automatically opens the iris then sets the video level with the electric shutter. With the resulting shallow depth of focus, the exact focus point can be set easily.

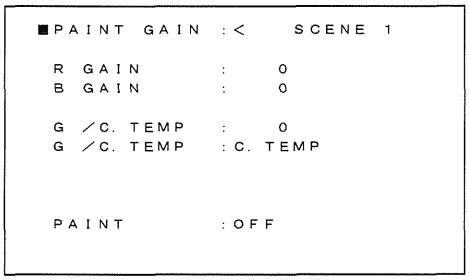
Function menu

6. COLOR MENU (COLOR MAIN- MENU) which are displayed in the Pix monitor or are displayed in the viewfinder with at control head mode.



Item	Setting	Factory setting	Description
PAINT GAIN	–	–	Change screen to PAINT GAIN menu.
PAINT BLACK	–	–	Change screen to PAINT BLACK menu.
PAINT GAMMA	–	–	Change screen to GAMMA menu.
KNEE/CLIP	–	–	Change screen to KNEE/CLIP menu.
MASKING	–	–	Change screen to MASKING menu.

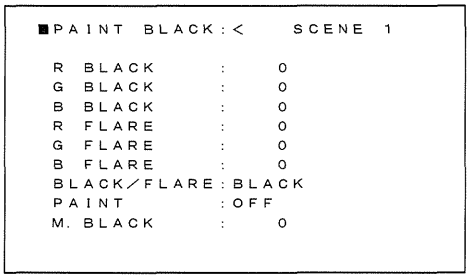
6.1 PAINT GAIN (COLOR SUB- MENU) & description.



Item	Setting	Initial setting	Description
R GAIN	-128 to +127	0	Adjust Red Gain for Paint. *1
B GAIN	-128 to +127	0	Adjust Blue Gain for Paint. *1
G GAIN/C.TEMP	-128 to +127	0	Adjust Green Gain or C.TEMP for Paint. *1
G GAIN/C.TEMP	G GAIN,C.TEMP	C.TEMP	Select Green Gain or C.TEMP for Paint. *1
PAINT	ON,OFF	OFF	Paint ON and OFF.

*1: In case the RU-3400JY S connected in the system, the Variable Register (VR) and the SLIDE switch in the RU have priority.

6.2 PAINT BLACK (COLOR SUB-MENU

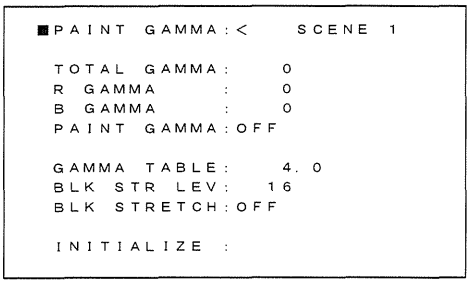


Item	Setting	Initial setting	Description
R BLACK	-128 to 127	0	Adjust Red black level for Paint. *1
G BLACK	-128 to 127	0	Adjust Green black level for Paint. *1
B BLACK	-128 to 127	0	Adjust Blue black level for Paint. *1
R FLARE	-128 to 127	0	Adjust Red Flare level for Paint. *1
G FLARE	-128 to 127	0	Adjust Green black level for Paint. *1
B FLARE	-128 to 127	0	Adjust Blue black level for Paint. *1
BLACK /FLARE	BLACK ,FLARE	BLACK	Select Black or Flare function for Paint. *1
PAINT	ON,OFF	OFF	Paint On and OFF
M.BLACK	-128 to 127	0	Adjust Master black function. *1

*1: In case the RU-3400JY S connected in the system, the Variable Register (VR) and the DIP switch in the RU have priority.

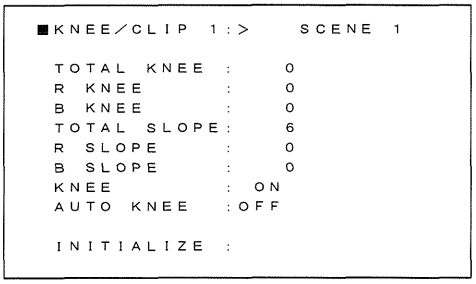
Function menu

6.3 PAINT GAMMA (COLOR SUB-MENU) & & description.



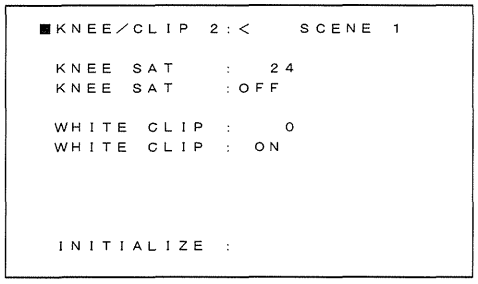
Item	Setting	Initial setting	Description
TOTAL GAMMA	-128 to 127	0	Adjust Total Gamma for paint
R GAMMA	-128 to 127	0	Adjust Red Gamma for paint
B GAMMA	-128 to 127	0	Adjust Blue Gamma for paint
PAINT GAMMA	ON,OFF	OFF	Paint Gamma function ON and OFF
GAMMA TABLE	3.0 to 8.0	4.0	Select gamma curve value from table
BLK STR LEV	0 to 31	16	Adjust Black Stretch level
BLK STRETCH	ON,OFF	OFF	Black Stretch function ON and OFF
INITIALIZE	–	–	Press the MENU SEL buttons to initialize GAMMA menu items.

6.4 KNEE/CLIP 1 menu (COLOR SUB-MENU) & description.



Item	Setting	Initial setting	Description
TOTAL KNEE	-128 to 127	0	Adjust Total Knee level
R KNEE	-128 to 127	0	Adjust R individual channel knee level
B KNEE	-128 to 127	0	Adjust B individual channel knee level
TOTAL SLOPE	-128 to 127	6	Adjust Total slope level
R SLOPE	-128 to 127	0	Adjust R individual channel slope level
B SLOPE	-128 to 127	0	Adjust B individual channel slope level
KNEE	ON,OFF	ON	Knee function ON and OFF
AUTO KNEE	ON,OFF	OFF	Auto Knee function ON and OFF
INITIALIZE	–	–	Press the MENU SEL buttons to initialize KNEE/CLIP1 menu items.

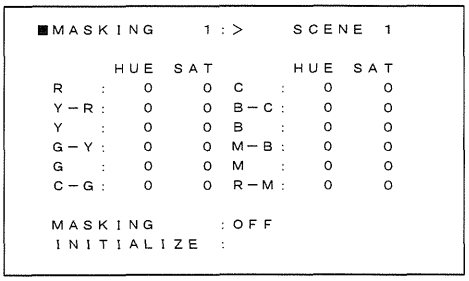
6.5 KNEE/CLIP 2 menu (COLOR SUB-MENU) & description.



Item	Setting	Initial setting	Description
KNEE SAT	-128 to 127	24	Adjust Knee Saturation
KNEE SAT	ON,OFF	OFF	Knee Saturation function ON And OFF
WHITE CLIP	-128 to 127	0	Adjust White Clip level
WHITE CLIP	ON,OFF	ON	White Clip function ON and OFF
INITIALIZE	–	–	Press the MENU SEL buttons to initialize KNEE/CLIP2 menu items.

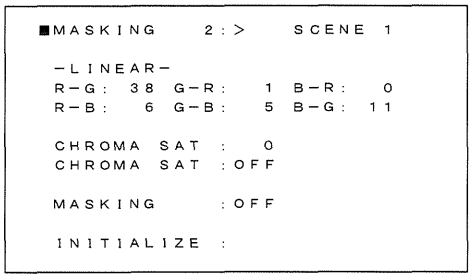
Function menu

6.6.1 MASKING 1 (COLOR SUB-MENU) & description.



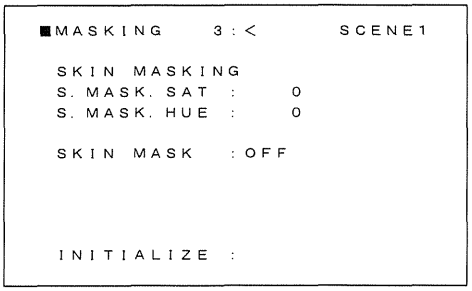
Item	Setting	Initial setting	Description
R HUE, SAT	-64 to +63	0	Adjust Red hue, saturation
Y-R HUE, SAT	-64 to +63	0	Adjust Yellow - Red hue, saturation
Y HUE, SAT	-64 to +63	0	Adjust Yellow hue, saturation
G-Y HUE, SAT	-64 to +63	0	Adjust Green - Yellow hue, saturation
G HUE, SAT	-64 to +63	0	Adjust Green hue, saturation
C-G HUE, SAT	-64 to +63	0	Adjust Cyan - Green hue, saturation
C HUE, SAT	-64 to +63	0	Adjust Cyan hue, saturation
B-C HUE, SAT	-64 to +63	0	Adjust Blue - Cyan hue, saturation
B HUE, SAT	-64 to +63	0	Adjust Blue saturation
M-B HUE, SAT	-64 to +63	0	Adjust Magenta - Blue hue, saturation
M HUE, SAT	-64 to +63	0	Adjust Magenta hue, saturation
R-M HUE, SAT	-64 to +63	0	Adjust Red - Magenta hue, saturation
MASKING	ON,OFF	OFF	Masking ON and OFF
INITIALIZIE	_	_	Press the MENU SEL buttons to initialize MASKING1 menu items.

6.6.2 MASKING 2 menu (COLOR SUB-MENU) & description.



Item	Setting	Initial setting	Description
LINEAR R-G	-64 to +63	38	Adjust liner matrix R-G parameter
LINEAR R-B	-64 to +63	6	Adjust liner matrix R-B parameter
LINEAR G-R	-64 to +63	1	Adjust liner matrix G-R parameter
LINEAR G-B	-64 to +63	5	Adjust liner matrix G-B parameter
LINEAR B-R	-64 to +63	0	Adjust liner matrix B-R parameter
LINEAR B-G	-64 to +63	11	Adjust liner matrix B-G parameter
CHROMA SAT	-64 to +63	0	Adjust liner matrix SAT parameter
CHROMA SAT	ON,OFF	OFF	Adjust liner matrix SAT parameter
MASKING	ON,OFF	OFF	Masking ON and OFF
INITIALIZE	_	_	Press the MENU SEL buttons to initialize MASKING2 menu items.

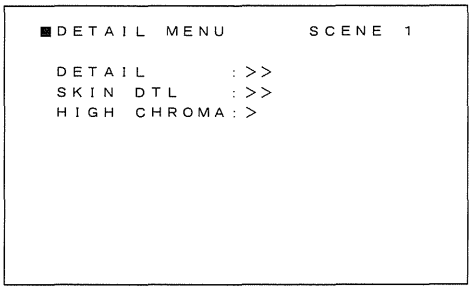
6.6.3 MASKING 3 menu (COLOR SUB-MENU) & description.



Item	Setting	Initial setting	Description
S.MASK.SAT	-128 to +127	0	Adjust saturation of skin tone masking
S.MASK.HUE	-128 to +127	0	Adjust hue of skin tone masking
SKIN MASK	ON,OFF	OFF	Skin tone masking ON and OFF
INITIALIZE	_	_	Press the MENU SEL buttons to initialize MASKING3 menu items.

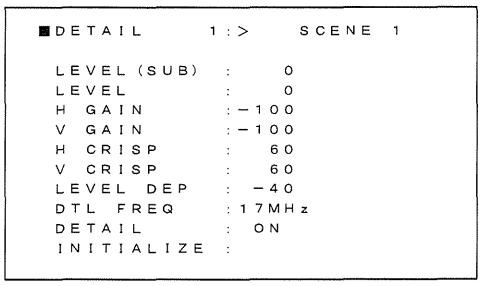
Function menu

7. DETAIL MENU (MAIN-MENU) which are displayed in the Pix monitor or are displayed in the viewfinder with at control head mode.



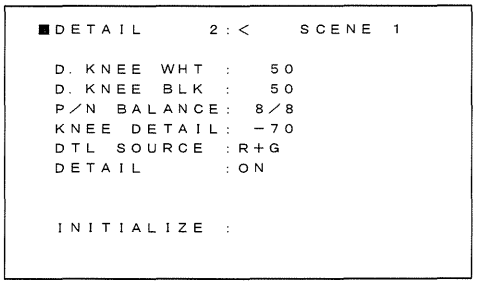
Item	Setting	Initial setting	Description
DETAIL	–	–	Change screen to DETAIL menu.
SKIN DTL	–	–	Change screen to SKIN DTL menu.
HIGH CHROMA	–	–	Change screen to HIGH CHROMA menu.

7.1.1 DETAIL 1 menu (DETAIL SUB-MENU) & description.



Item	Setting	Initial setting	Description
LEVEL(SUB)	-128 to +127	0	Adjust Detail level
LEVEL	-128 to +127	0	Adjust Detail level
H GAIN	-128 to +127	-100	Adjust H. detail gain
V GAIN	-128 to +127	-100	Adjust V. detail gain
H CRISP	-128 to +127	60	Adjust H detail crisp
V CRISP	-128 to +127	60	Adjust V detail crisp
LEVEL DEP	-128 to +127	-40	Adjust level dependent of detail
DTL FREQ	13, 14, 15, 16, 17, 18, 19	17 MHz	Set boost frequency of detail
DETAIL	ON,OFF	ON	Detail On and OFF
INITIALIZE	–	–	Press the MENU SEL buttons to initialize DETAIL 1 menu items.

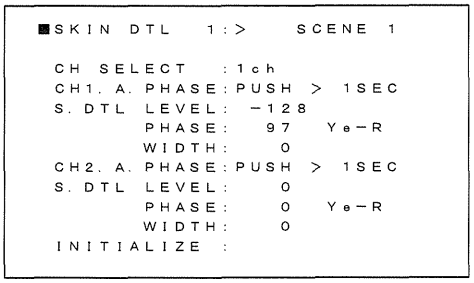
7.1. 2 DETAIL 2 menu (DETAIL SUB-MENU) & description.



Item	Setting	Initial setting	Description
D.KNEE WHT	-128 to +127	50	Positive detail knee adjust
D.KNEE BLK	-128 to +127	50	Negative detail knee adjust
P/N BALANCE	5/8, 6/8, 7/8, 8/8, 8/7, 8/6, 8/5	8/8	Balance adjustment for POS/NEG detail
KNEE DETAIL	-128 to +127	-70	Adjust knee detail slope
DTL SOURCE	G,R+G,R+G+B	R+G	Set source signal for detail
DETAIL	OFF, ON	ON	Set On and OFF detail
INITIALIZE	–	–	Press the MENU SEL buttons to initialize SKIN DTL 2 menu items.

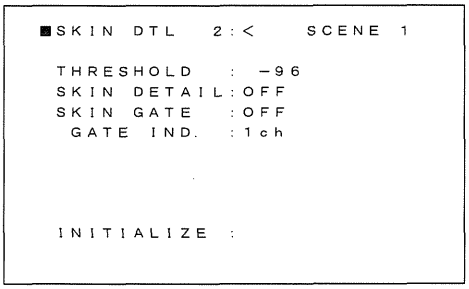
Function menu

7.2.1 SKIN DTL 1 menu (DETAIL SUB-MENU) & description.



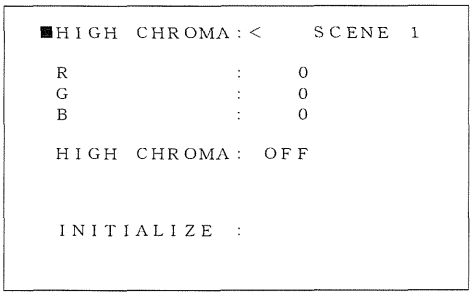
Item		Setting	Initial setting	Description
CH SELECT		1ch,2ch	1ch	CH selection for skin tone detail
CH1 A.PHASE		–	–	Set CH1 skin tone detail phase
CH1 S.DTL	LEVEL	-128 to +127	-128	Adjust CH1 skin tone detail level
	PHASE	-128 to +127 R-Mg, Mg-B, B-Cy, Cy-G, G-Ye, Ye-R	97 Ye-R	Set & adjust CH1 skin tone detail phase.
	WIDTH	-128 to +127	0	Range setting of the CH1 skin tone phase
CH2 A.PHASE		–	–	Set CH2 skin tone detail phase.
CH2 S.DTL	LEVEL	-128 to +127	0	Adjust CH2 skin tone detail level
	PHASE	-128 to +127 R-Mg, Mg-B, B-Cy, Cy-G, G-Ye, Ye-R	0 Ye-R	Set & adjust CH2 skin tone detail phase.
	WIDTH	-128 to +127	0	Range setting of the CH2 skin tone phase
INITIALIZE		–	–	press the MENU SEL buttons to initialize SKIN DTL 1 menu items.

7.2.2 SKIN DTL 2 menu (DETAIL SUB-MENU) & description.



Item	Setting	Initial setting	Description
THRESHOLD	-128 to +127	-96	Threshold level for Skin tone Detail set
SKIN DETAIL	ON, OFF	OFF	Skin tone Detail ON and OFF
SKIN GATE	OFF, 1, 2, 1+2	OFF	Display ON and OFF for Skin tone Detail gate
GATE IND.	1ch, 2ch	1ch	Set skin tone Detail gate
INITIALIZE	–	–	press the MENU SEL buttons to initialize SKIN DETAIL menu items.

7.3 HIGH CHROMA menu (DETAIL SUB-MENU) & description.



Item	Setting	Initial setting	Description
R	-128 to +127	0	R high saturation detail gain adjustment
G	-128 to +127	0	G high saturation detail gain adjustment
B	-128 to +127	0	B high saturation detail gain adjustment
HIGH CHROMA	ON, OFF	OFF	High Chroma detail ON andOFF
INITIALIZE	–	–	press the MENU SEL buttons to initialize HIGH CHROMA menu items.

Function menu

8. MAINTENANCE menu (MAIN MENU) which are displayed in the Pix monitor or are displayed in the viewfinder with at control head mode.

```
■MAINTENANCE MENU

 AUTO SETUP    :>
 WHT SHADING   :>
 AUTO IRIS     :>
 MIC GAIN      :>
 GAIN SET      :>
 SHUTTER       :>
 SYSTEM        :>
 TIME/DATE     :>
 CHECK         :>
```

Item	Setting	Description
AUTO SETUP	–	Change screen to AUTO SETUP menu.
WHT SHADING	–	Change screen to WHT SHADING menu.
AUTO IRIS	–	Change screen to AUTO IRIS menu.
MIC GAIN	–	Change screen to MIC GAIN menu.
GAIN SET	–	Change screen to GAIN SET menu.
SHUTTER	–	Change screen to SHUTTER menu.
SYSTEM	–	Change screen to SYSTEM menu.
TIME/DATE	–	Change screen to TIME/DATE menu.
CHECK	–	Change screen to CHECK menu.

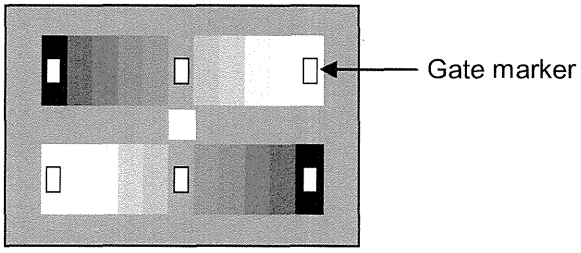
8.1 AUTO SETUP menu (MAINTENANCE SUB-MENU) & description.

```
■AUTO SETUP   :<

 CH1. A. PHASE:PUSH  >  1SEC
 CH2. A. PHASE:PUSH  >  1SEC

 GRAY SCALE   :PUSH  >  1SEC
  BLACK LEV   :   5.00%
  FLARE LEV   :  12.00%
  GAMMA LEV   :  58.00%
```

Item	Setting	Initial setting	Description
CH1.A.PHASE	–	–	Skin tone Auto CH1 phase set. *1
CH2.A.PHASE	–	–	Skin tone Auto CH2 phase set. *1
GRAY SCALE	–	–	Gray scale Auto set up *2
BLACK LEV	0.0 to 12.35%	5.0%	Black level set
FLARE LEV	0.0 to 24.70%	12.0%	Flare level set
GAMMA LEV	42.20 to 67.70%	58.0%	Gamma level set

***1: Displayed gate marker in enter of the picture for Skin tone detail Auto set up.**

***2: Displayed 6 gate markers in the picture for Gray scale Auto set up.**



Position the gray scale chart to 6 gate marker.

8.2 WHT SHADING menu (MAINTENANCE SUB-MENU) & description.

```
■WHT SHADING

 EXTENDER      :OFF (X1)

 WHT SHADING:PUSH  >  1SEC
 R V SAW     :    0
 G V SAW     :    0
 B V SAW     :    0


 INITIALIZE  :
```

Item	Setting	Initial setting	Description
EXTENDER	ON,OFF	–	Display Lens extender position
WHT SHADING	–	–	Set Auto WHT SHADING
R V SAW	-128 to +127	0	Adjust R V SAW shading
G V SAW	-128 to +127	0	Adjust G V SAW shading
B V SAW	-128 to +127	0	Adjust B V SAW shading
INITIALIZE	–	–	initialize WHT SHADING items.

Function menu

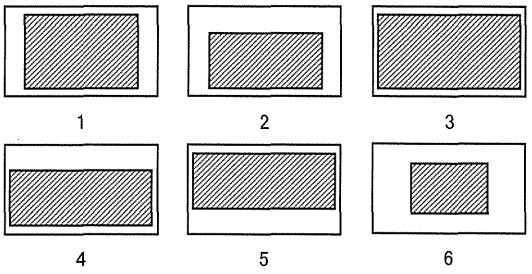
8.3 AUTO IRIS menu (MAINTENANCE SUB-MENU) & description.

```
■AUTO IRIS    :<

 AUTO IRIS    :REMOTE

 IRIS TRIM    :    0
 IRIS SPEED   :    0
 PEAK/AVE     :0/10
 IRIS GATE    :    1
 OPEN  LIMIT  :+127
 CLOSE LIMIT  : -85

 INITIALIZE   :
```

Item	Setting	Initial setting	Description
AUTO IRIS	REMOTE,AUTO	AUTO	Setting of Iris control mode. *1
IRIS TRIM	-128 to +127	0	Adjust Auto iris output level
IRIS SPEED	-128 to +127	0	Speed control of the Iris response
PEAK/AVE	0/10, 1/9, 2/8, 3/7, 4/6, 5/5	0/10	Setting of Peak & Average detect for Auto iris
IRIS GATE	1 to 6	1	Setting of Auto Iris gate. *2
OPEN LIMIT	0 to +127	+127	Adjust limiter value for Auto Iris open
CLOSE LIMIT	-128 to -1	-85	Adjust closing limiter value for Auto Iris
INITIALIZE	–	–	Initialize auto iris menu

*1: Effect only AUTO selected at the lens side selection switch. If it's selected to MANUAL, drive iris directly.

*2:



8.4 MIC GAIN menu (MAINTENANCE SUB-MENU) & description.

```
■MIC GAIN     :<

 MIC1         :-60  dB
 MIC2         :-60  dB

 FRONT MIC
  PHANTOM     :ON
```

Item	Setting	Initial setting	Description
MIC 1	-70,-60,-50,-40,-30,-20,-10	-60dB	Set input gain of MIC1
MIC 2	-70,-60,-50,-40,-30,-20,-10	-60dB	Set input gain of MIC2
FRONT MIC PHANTOM	ON,OFF	ON	Fantom power ON and OFF
INITIALIZE	–	–	

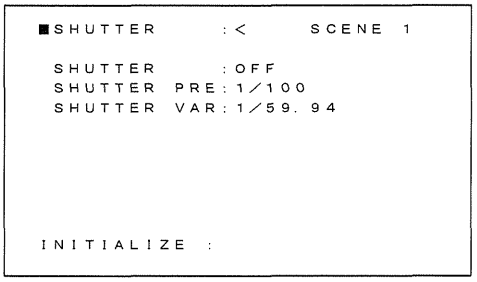
8.5 GAIN SET menu(MAINTENANCE SUB-MENU) & description.

```
■GAIN SET     :<

 M. GAIN LOW  :   0  dB
 M. GAIN MID  :   6  dB
 M. GAIN HIGH :  12  dB
```

Item	Setting	Initial setting	Description
M.GAIN LOW	-3, 0 dB	0dB	Low gain setting of M.Gain
M.GAIN MID	0, 3, 6, 9, 12, 15, 18, 21dB	6dB	MID gain setting of M.Gain
M.GAIN HIGH	3, 6, 9, 12, 15, 18, 24dB	12dB	HIGH gain setting of M.Gain

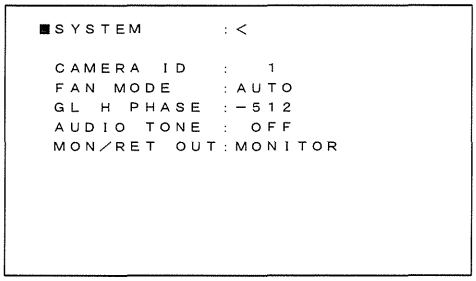
Function menu

8.6 SHUTTER menu (MAINTENANCE SUB-MENU) & description.



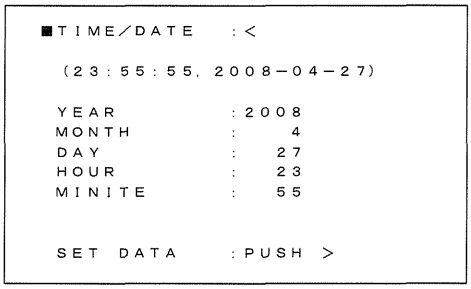
Item	Setting	Initial setting	Description
SHUTTER	OFF, PRESET, VAR, AES	OFF	
SHUTTER PRE	CCFRM , 1/100(59.94i), 1/60(50i) 1/250,1/500, 1/1000, 1/2000	1/100(59.94i) 1/60(50i)	
SHUTTER VAR	1/59.94~1/1983(59.94i) 1/50.00~1/2008(50i)	1/59.94(59.94i) 1/50(50i)	
INITIALIZE	–	–	

8.7 SYSTEM menu (MAINTENANCE SUB-MENU) & description.



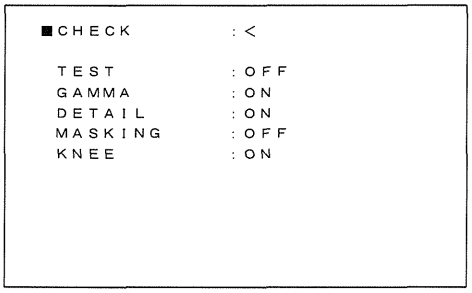
Item	Setting	Factory setting	Description
CAMERA ID	1 to 12	1	Setting of camera number
FAN MODE	OFF,AUTO,LOW,HIGH	AUTO	Setting of FAN mode
GL H PHASE	-512 to 0	-512	Adjustment of GL Phase
AUDIO TONE	OFF, ON	OFF	1 kHz audio test signal on/off.
MON/RET OUT	MONITOR,VF,RET	MONITOR	MON/RET setting

8.8 TIME/DATE menu (MAINTENANCE SUB-MENU) & description.



Item	Setting	Initial setting	Description
YEAR	2000 to 2099	-	Not affected by all initialize.
MONTH	01 to 12	-	Not affected by all initialize.
DAY	01 to 31	-	Not affected by all initialize.
HOUR	00 to 23	-	Not affected by all initialize.
MINUTE	00 to 59	-	Not affected by all initialize.
SET DATA	-	-	Press the MENU SEL knob to activate the time and date setting

8.9 CHECK menu (MAINTENANCE SUB MENU) & description.



Item	Setting	Initial setting	Description
TEST	OFF,ON	OFF	TEST signal ON and OFF
GAMMA	OFF,ON	ON	GAMMA function ON and OFF
DETAIL	OFF,ON	ON	DETAIL function ON and OFF
MASKING	OFF,ON	OFF	MASKING function ON and OFF
KNEE	OFF,ON	ON	KNEE function ON and OFF

Function menu

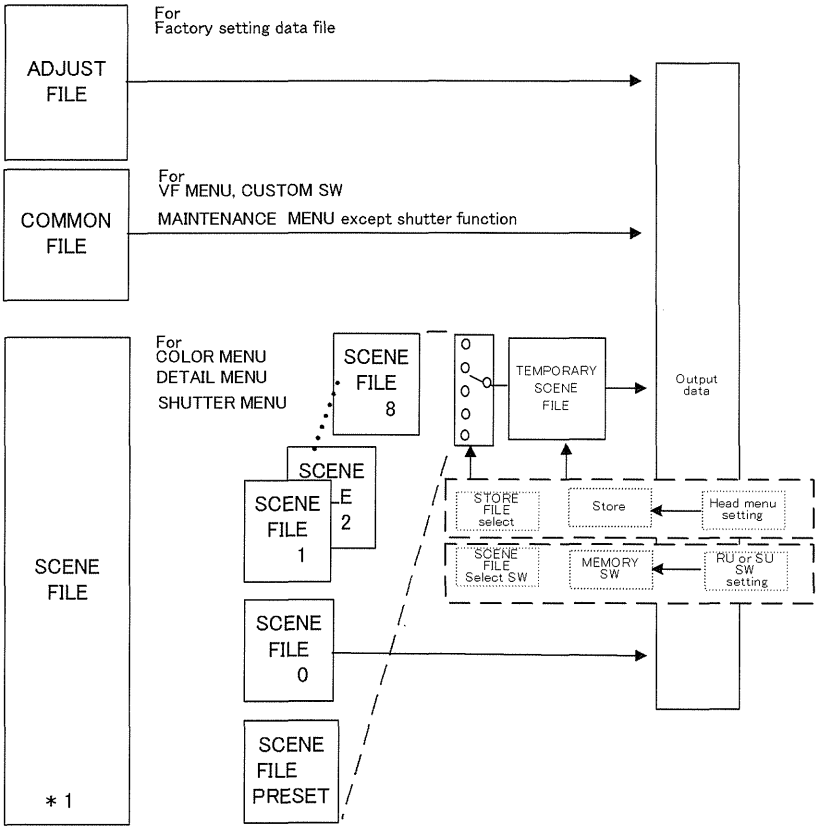
9. FILE menu (FILE MAIN MENU) which are displayed in the Pix monitor or are displayed in the viewfinder with at control head mode

```
■FILE MENU

 FILE SELECT:SCENE 0

 STORE FILE :SCENE 0
 STORE      :



 ALL INITIALIZE
```

Item	Setting	Initial setting	Description
FILE SELECT	0 to 8,PRESET	0	Selection of file setting
STORE FILE	0 to 8	0	Setting of scene file memroy
STORE			Store scene file data to memory
ALL INITIALIZE			Initialize scene file data

SK-HD1000 FILE STRUCTURE

There are Adjust , Common and Scene three major data files in the camera head memory.



* 1: This scene file is indicated at top right corner in the each menu box in the OP manual

1. COMMON FILE and TEMPORARY SCENE FILE data values are stored to the memory automatically.
   When SCENE FILE 0 is selected, adjusted value data is stored to memory automatically.
2. SCENE 1~8 : After selected scene file, adjusted value data is kept in TEMPORARY SCENE file but required to push the memory switch for storing data to scene file.
3. SCENE FILE PRESET: This PRESET data is factory adjustment value & condition. Push memory switch and store the PRESET data to SCENE 1 to 8 for restore new scene file setting.
4. When power OFF to ON, the data hold previous condition.

Specifications

Camera Head SK-HD1000		
1	CCD	2/3-inch, IT-CCD Total pixels 2,010 (H) × 1,120(V) 2.3 million pixels Effective pixels 1,920 (H) × 1,080 (V)
2	Native Scan	1080/60i(SK-HD1000),1080/50i(SK-HD1000E)
3	Prism	F1.4
4	Optical Filter	1X motorized filter wheel w/ 4 filter positions (Clear, Cross, 1/16 ND, 1/64 ND)
5	ECC Filter	3200 K, 4300 K, 5600 K, 6300 K, 8000K
6	Lens mount	B4 Bayonet
7	HD Resolution	1100TVL
8	HD SNR	Typical 60dB (HD-SDI output decode Y channel Band: 27.5 MHz)
9	Std Sensitivity	F10 @ 2000lx, 3200°K, 89.9% reflectance
10	Analog-to-Digital Conversion depth	14-Bit
11	Minimum illumination	3 lx (at F1.4) (GAIN: +24 dB)
12	Modulation Depth	60%typ 55%min(16:9 @27.5MHz)
13	Vertical Smear	Typical -130dB
14	Gain selection	L (low) -3/0 dB M (medium) 0/+3/+6/+9/+12/+15/+18/+21/dB H (high) +3/+6/+9/+12/+15/+18/+21/+24 dB
15	Shutter	1/100(59.94i), 1/250, 1/500, 1/1000, 1/2000 (s) 1/60(50i), 1/250, 1/500, 1/1000, 1/2000 (s)
16	Lock scan	1/59.94 to 1/1983(59.94i) 1/50.00 to 1/2008(50i)
17	Geometric distortion	Overall: 0 % (excluding lens characteristics)
18	Registration Overall	0.01 % (excluding lens characteristics)
19	Dimensions	133(W) x 191(H) x 262(D) mm
20	Power Consumption	16W Head only (without VF)
21	MASS	2.2Kg Camera head
22	Input & Output	1X BNC HD-SDI VF out (Character ON/OFF) or HD-SDI RET out 4-pin Multi connector for remote control panel 20-pin Multi VF connector,12-pin Multi LENS connector 3-pin XLR MIC-1 connector ,SD Memory Card Slot

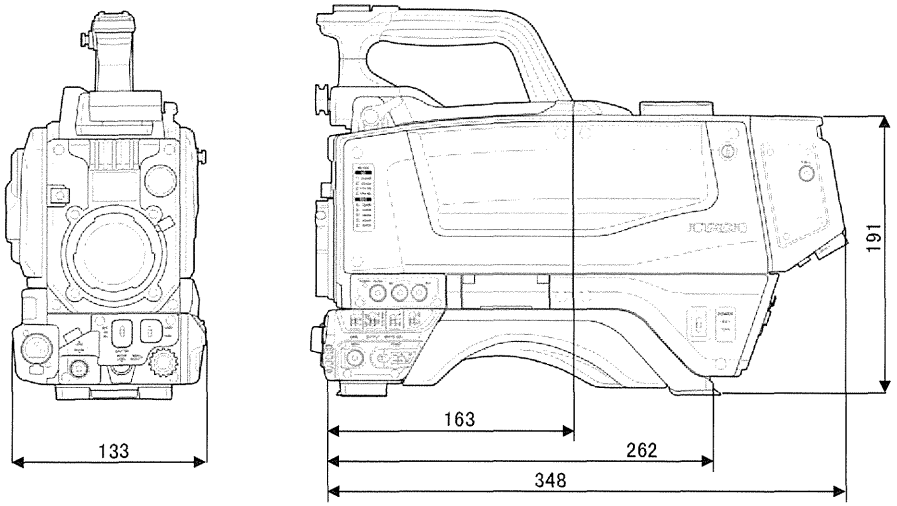
Specifications

Fiber Adapter CA-HF1000		
1	Fiber adapter	Fiber adapter/ 1X SMPTE304M-SMPTE311M-type FOC Cn(LEMO)
2	Fiber adapter I-O	2X BNC HD-SDI 1X BNC PROMPT switch-able GENLOCK (analog Tri-level in or SD VBS OUT) 4-pin Script +12VDC OUT(1.0A max) 29-pin D-SUB for studio-adaptor 5-pin AC230V for Prompter Power / Tally out 2X XLR INCOM (2-Chnl + PGM Mix) 1X XLR 12VDC POWER (12V 3Amax)
3	Features	Intercom channel selection, MIC on/off, volume , PGM mix volume 60W~100W Prompter power availability(CU-3300) Chnl1&2 Line or MIC level select(MENU) Remote AUX / VF video select connector (RET CONT)
4	MASS	2.2Kg Fiber Adapter
2-inchviewfinder VF- 402		
1	Construction	Metal Die-cast chassis & mount
2		2-inch BW 16:9 CRT
3		Diopter (CRT Focus Ring)
4		VF angle rotation
5		X-Y mechanical movement
6	Resolution	600 TV lines
7	Functions	BRIGHT, CONTRAST, PEAKING knob VR (front facing)
8	Internal tally	Red/Green
9	Tally switch	Tally switch OFF, NORMAL, HIGH
5-inch viewfinder VF- HD500		
1		5-inch BW 4:3 CRT
2	Resolution	750 TV lines
3	Functions	BRIGHT, CONTRAST, PEAKING knob VR
4	Internal tally	Red/Green
5	Dimensions	140(W) x 140(H) x 252(D) mm
6	Aspect	16:9 only(16:9/4:3 mode)
7	Power consumption	15W
9-inch viewfinder VF-L9HD		
1	Format	1080i /720P field frequency= 60 / 59.94 / 50 Hz
2	Number of pixels	800 (H) x 450 (V) normal scan (16:9)
3	Color temperature	6500K
4	Input Signals	Analogue Y/Pb/Pr/SYNC
5	Functions	BRIGHT, CONTRAST, PEAKING knob VR power on/off, tally on/off, Marker on/off, (center marker, 4:3 marker, area marker)
6	Internal tally	Red/Green
7	Dimensions	230(W) x 185(H) x 86(D) mm

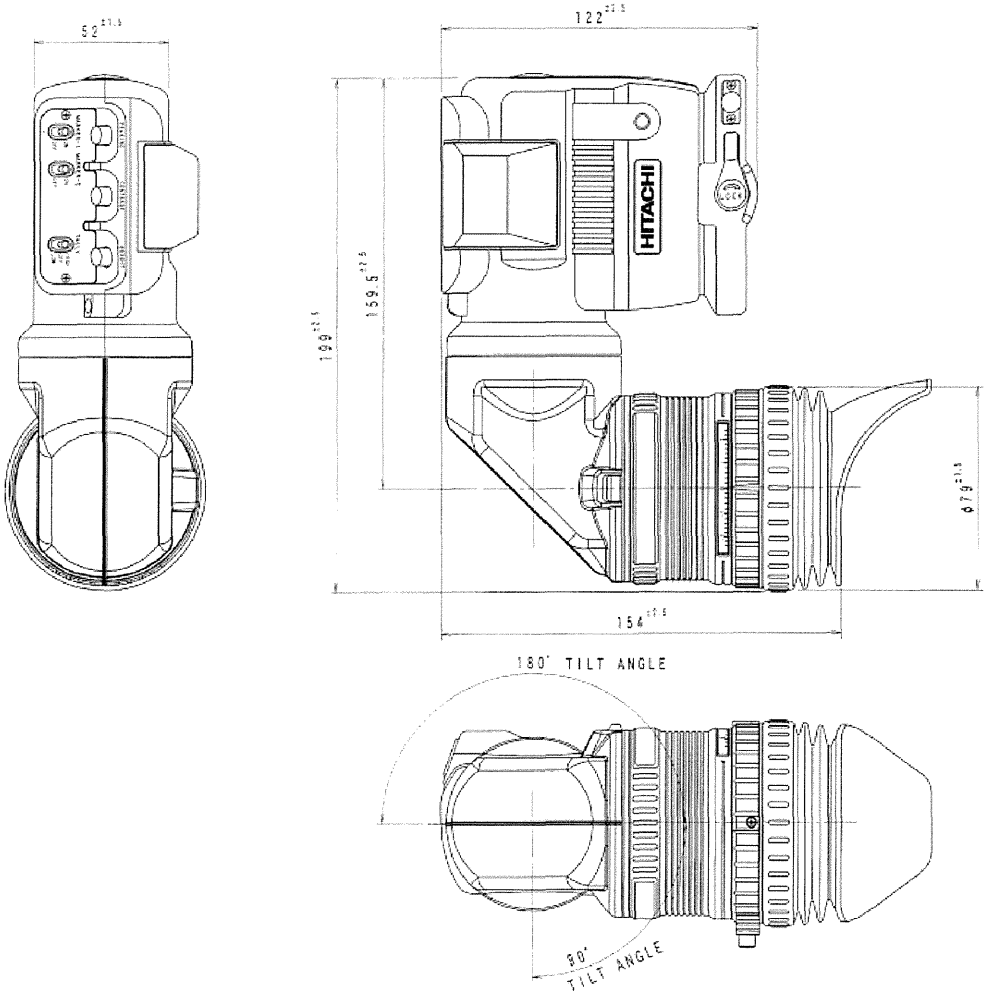
Specifications

Dimensions

·SK-HD1000 / CA-HF1000

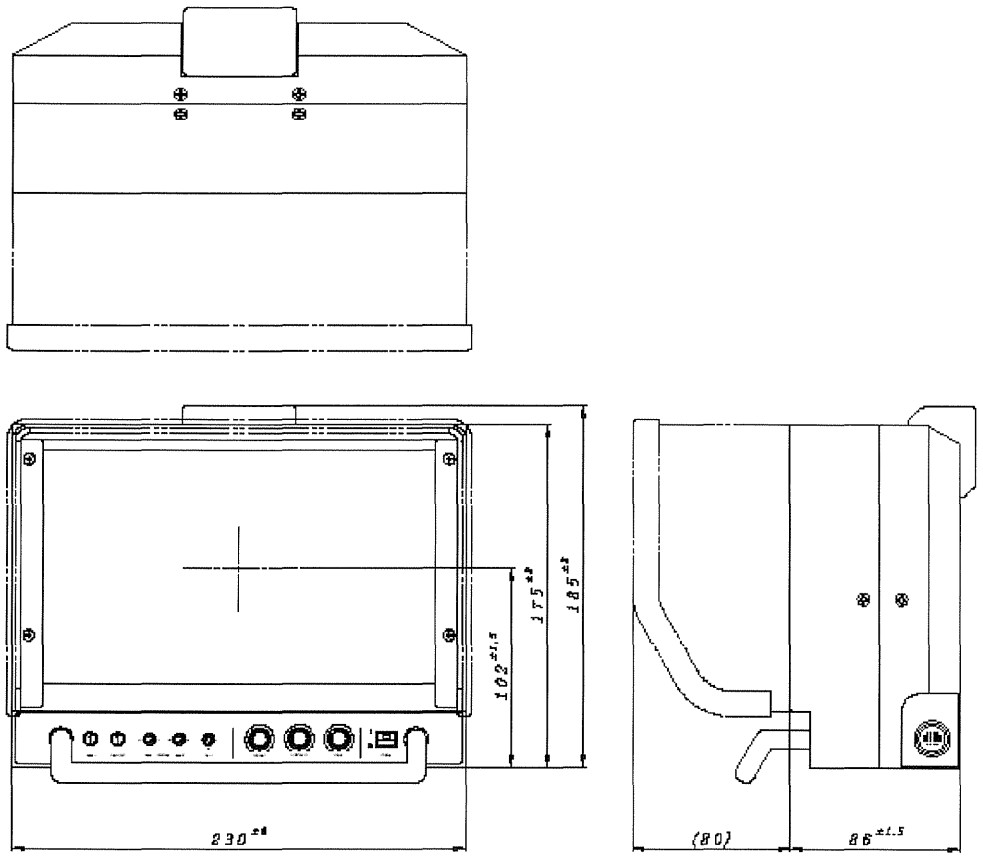


·VF- 402

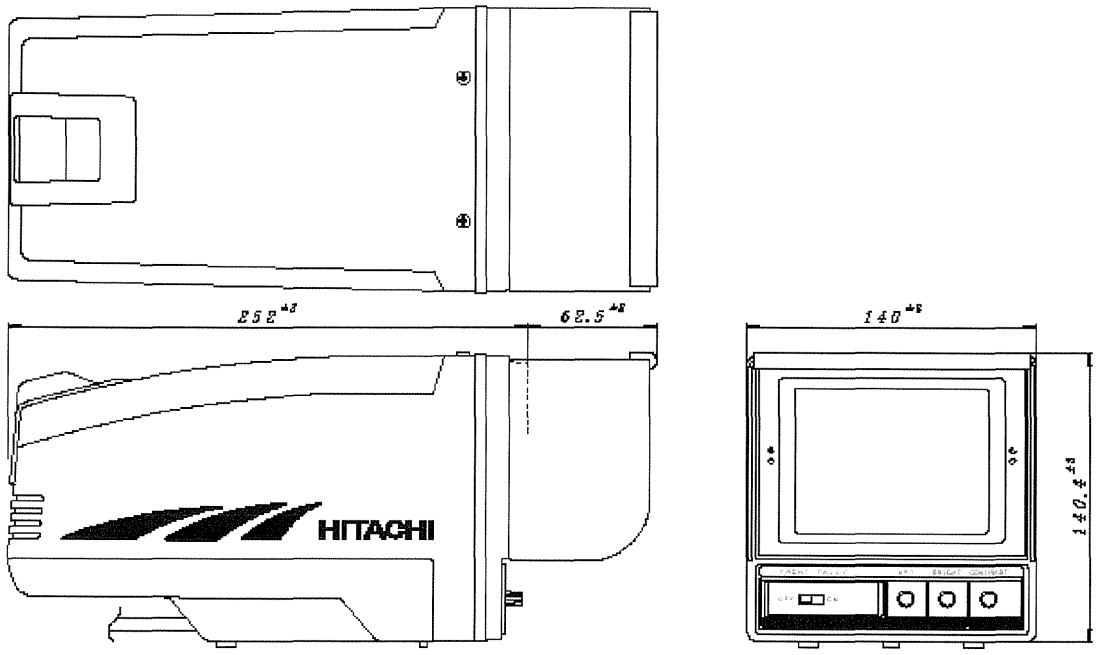


Specifications

·VF-L9HD



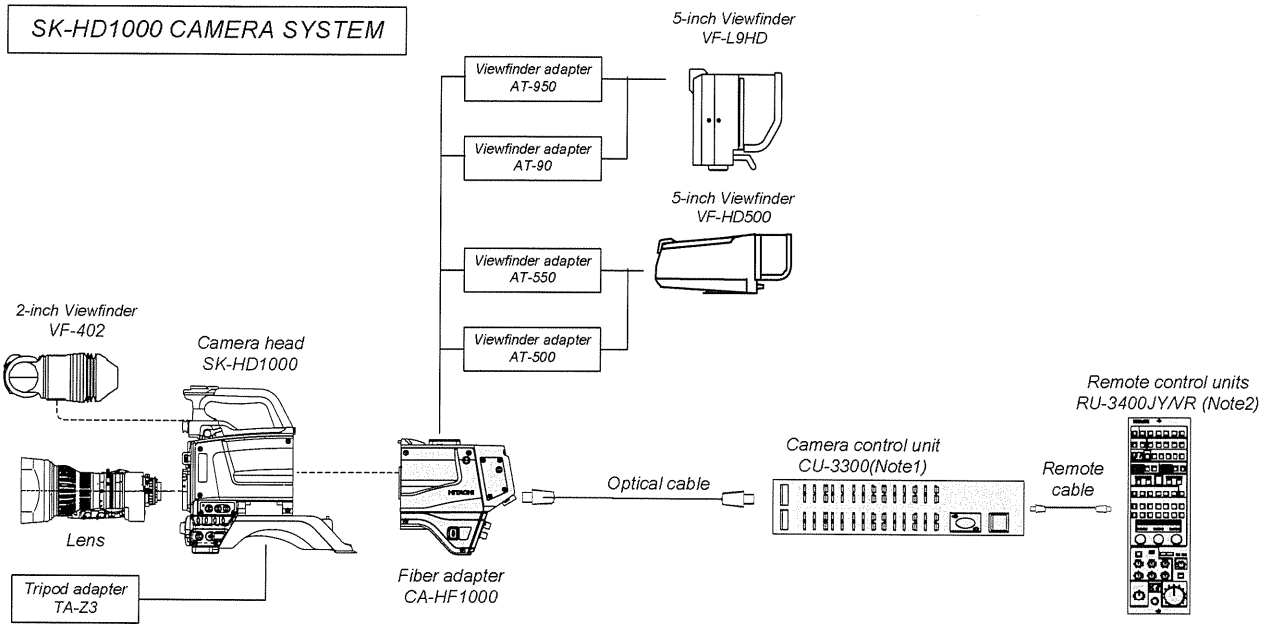
·VF-HD500



Studio system operation

Connection with fiber system

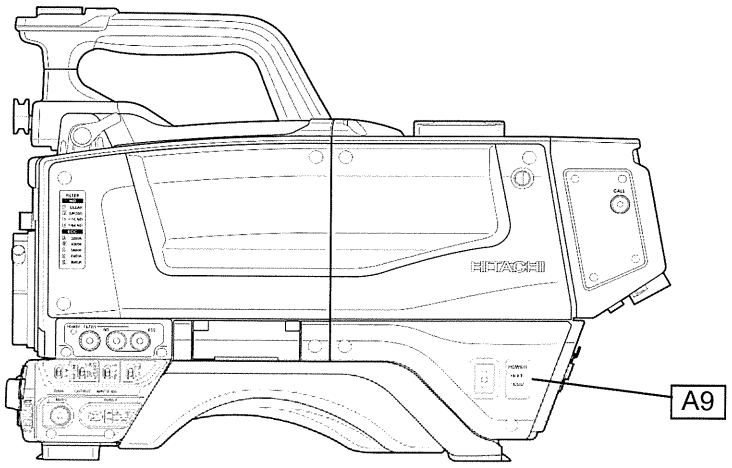
The camera can be connected into a system comprising the CU-3300 (Note1)camera control unit and RU-3400JY/VR(Note2) camera control panel to enable remote operation of the camera control functions. The camera and CU-3300 can be separated by up to 1000 meters, while a 5-inch viewfinder can be used in place of the 2-inchi viewfinder.



Note 1
CU-3300-S6(2 wire INCOM system), CU-3300-S7(4 wire INCOM system) for SK-HD1000 system
Note 2
RU-3400JY-S7 for SK-HD1000 system

Power select switch setting

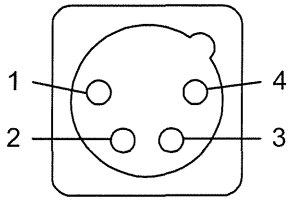
Set the A9 POWER switch to CCU.
EXT : Power supplied via DC input connector.
CCU : Power supplied via fiber cable



Service information

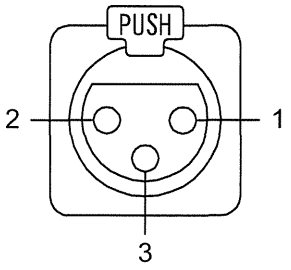
Fiber adapter CA-HF1000

DC IN (4 pin XLR male:HA16RA-4P(76))



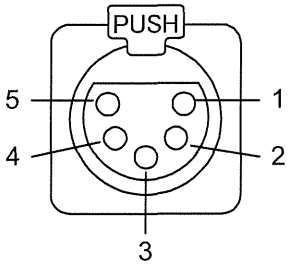
Pin	Signal
1	GND
2	NC
3	NC
4	+12V input

MIC 1,MIC 2 IN(3 pin XLR female:HR16PRQ-3SE(71))



Pin	Signal
1	MIC GND
2	MIC(H) IN
3	MIC(C) IN

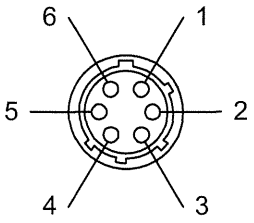
INTERCOM (5 pin XLR female:HA16PRH-5S)



Pin	Signal
1	MIC IN(C)
2	MIC IN(H)
3	RECEIVE(C)
4	RECIEVE1(H)
5	RECIEVE2(H)

RET CONT(6 pin female:HR10A-7R-6SB(74))

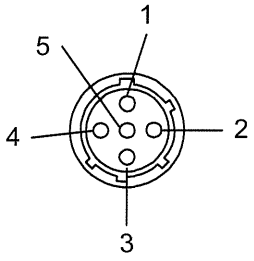
Mating connector:HR10A-7P-6P



Pin	Signal
1	INCOM 1 TALK ON/OFF
2	INCOM 2 TALK ON/OFF
3	GND
4	NC
5	RET 1 CTL
6	RET 2 CTL

SCRIPT (5 pin female:HR10A-7R-5SB(73))

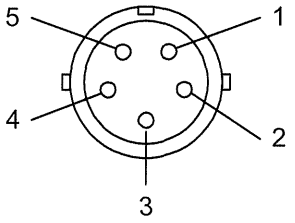
Mating connector:HR10A-7P-5P



Pin	Signal
1	SCRIPT +12V
2	GND
3	NC
4	NC
5	NC

AC230 V OUT (5 pin female:RM12BRB-5S)

Mating connector:RM12BPG-5PH



Pin	Signal
1	AC 230V
2	AC 0V
3	GND
4	TALLY OUT(*)
5	AC CTL

(*) open collector

HITACHI KOKUSAI ELECTRIC

AKIHABARA UDX Bldg. 11F
4-14-1 Sotokanda, Chiyoda-ku, Tokyo 101-8980, Japan
Phone : (03) 6734-9530, Fax : (03) 5209-6079

HITACHI KOKUSAI ELECTRIC AMERICA, LTD.

Headquarters and Northeast Office
150 Crossways Park Drive, Woodbury, New York 11797, U. S. A.
Phone: (516) 921-7200 Fax: (516) 496-3718
Parts Center
Phone : (516) 682-4435 Fax: (516) 921-0993
Latin Sales
Phone : (516) 682-4420 Fax: (516) 496-3718
West Office
371 Van Ness Way, Suite 120 Torrance, CA. 90501, U. S. A.
Phone : (310) 328-6116 Fax: (310) 328-6252
Midwest Sales
Phone : (330) 334-4115 Fax: (516) 496-3718
Service (734) 721-6180
South Sales
Phone : (770) 972-4724 Fax: (516) 496-3718
Service (678) 937-0201

HITACHI KOKUSAI ELECTRIC CANADA, LTD.

Head Office
1 Select Avenue Unit#11 Scarborough, Ontario M1V 5J3, Canada.
Phone : (416) 299-5900 Fax:(416) 299-0450
Eastern Office
5795 Chemin St, Francois St, Laurent, Quebec H4S 1B6, Canada
Phone : (514) 332-6687 Fax:(514) 335-1664
Ottawa Office
9 Antares Drive, Nepean, Ontario, K2E 7V5, Canada
Phone : (613)727-3930 Fax:(613) 825-4253

HITACHI KOKUSAI ELECTRIC EUROPE GmbH

Head Office
Wesikircher Stra β e 88, Jügesheim D-63110 Rodgau, Germany
Phone : (6106) 6992-0 Fax:(6106) 1690-6

HITACHI KOKUSAI ELECTRIC U. K. LTD.

Head Office
Windsor House, Britannia Road, Waltham Cross Hertfordshire EN8 7NX, United Kingdom
Phone : (44) 845-1212-177, Fax:(44) 845-1212-180
Leeds Office
Brookfield House, Selby Road, Garforth, Leeds LS25 1NB United Kingdom
Phone : (113) 287-4400, Fax:(113) 287-4260

HITACHI KOKUSAI ELECTRIC (Shanghai) Co., LTD.

Room F-G, 17F World Plaza, No. 855 Pudong Road South, Pudong New Area, Shanghai 200120, China
Phone : 86-21-6888-1166 Fax:86-21-6888-1167
Beijing Branch
Room 1415, Beijing Fortune Building, 5 Dong San Huan Bei-Lu, Chao Yang District, Beijing 100004, China
Phone : 86-10-6590-8755 Fax:86-10-6590-8757
Beijing Service Center
A25, Bei San Huan Zhong Road Beijing China
Phone : (010) 6204-3901/3903, Fax : (010) 6204-3902

Hitachi Kokusai Electric

Printed in Japan 200810 1.5HS2966 3 © PL
8BHB000099